Communications Research
and Paper Series 1

Communicating Home Garden Information

Vernon A. Keel, Harry P. Zimmerman, Robert A. Wearne

Phase I Report---
The Minnesota-Wisconsin, ES-USDA Home Horticulture Project

Agricultural Extension Service, University of Minnesota
Cooperative Extension Programs, University of Wisconsin-Extension
Extension Service, U.S. Department of Agriculture

Agricultural Extension Service/University of Minnesota
Department of Information and Agricultural Journalism

Acknowledgements

The study reported here is the result of a special grant from the Extension Service-USDA to the Cooperative Extension Services of the Universities of Wisconsin and Minnesota. This report reviews work done in the first phase of the project by both states and the Extension Service-USDA.

Responsible for coordinating the effort between the three were Hal Routhe, associate director, Agricultural Extension Service, University of Minnesota; R. E. Rieck, associate dean, College of Agriculture and Life Sciences, University of Wisconsin-Extension; and Robert Wearne, horticulturist, Extension Service, U. S. Department of Agriculture, Washington, D.C.

Project leaders were Eugene Pilgram, program director, Agriculture, Agricultural Extension Service, University of Minnesota; Robert Newman, Department of Horticulture, University of Wisconsin; and Robert Wearne.

Each state had an advisory committee. The Wisconsin committee included Lee Hansen, beautification agent, Milwaukee County; Robert Newman, R. E. Rieck, Gayle Worf, Plant Pathology, Extension; Harry P. Zimmerman; and the Commercial Ornamental, and Home Horticulture Committee, University of Wisconsin-Extension. Cooperating county Extension staff in pilot counties include Lee Hansen, Milwaukee County; Vernon Peroutky, Winnebago County; and Frederic Dahms, Grant County. Research assistant was Norman Senn.

The Minnesota committee included: Arnold Sandager, Extension district director; Jane McKinnon, Extension horticulturist; Ward Steinstra, Extension plant pathologist; Joseph Fox, Ramsey County Extension Agent; David Noetzel, Extension entomologist; George Roadfeldt, Hennepin County Extension Agent; Warren Sifferath, Dakota County Extension Agent; Richard Swanson, Anoka County Extension Agent; Vernon Keel, Norman Engel, Harold B. Swanson, Information and Agricultural Journalism; Patrick Borich, state leader, Extension Research and Education; Dennis Seefeldt, Washington County Extension Agent; William Miles, Extension forester; Glenn McCleary, Extension district director.

In the Extension Service-USDA, several units were involved including the staffs of the Information Service, Management Operations, Program and Staff Development, and Agricultural and Natural Resources.

CONTENTS

INTRODUCTION

By Vernon A. Keel
Harry P. Zimmerman
Robert A. Wearne

A. Popularity of Home Gardening

Home gardening, one of this country's most popular leisure activities, is continuing to attract people of all ages, occupations, and socio-economic levels. Time-budget studies over the years have consistently shown gardening to be among the most frequently mentioned areas of leisure participation (Lundberg, et al., 1934; Ward, 1954; Robinson and Converse, 1967; and Robinson, 1969).

Findings from these studies are generally consistent with those of the 1957 survey by the Opinion Research Corporation. That survey showed working around the yard and in the garden were among the 10 most frequent activities done by people in their free time. More precisely, when asked what leisure activities they had engaged in the day before the interview, exactly one-third of the respondents mentioned some form of yard and garden activity. This was next only to watching television (57%) and visiting with friends or relatives (38%).[1] This is similar to findings by Cunningham, et al. (1968), who found that 29 percent of the respondents in their Tecumseah, Mich. area sample spent at least a 1/2 hour per week per year on gardening activities. Likewise, data from the Robinson and Converse (1967) national time-budget study indicate that the average American spends about 1/10 hour each day (over 1/2 hour per week) on gardening activities.

The obvious explanations for such widespread participation in home gardening include the growing number of single family and private dwellings and the increasing number of second homes. At the beginning of the present decade there were about 40 million privately owned homes in the United States. Over two million families owned second homes (U.S. Bureau of the Census, 1971, pp. 668-670). Of the 1.5 million private housing starts each year at that time, it was estimated over 10 percent were for second or vacation homes.[2]

In addition to the occupants of privately owned, single family households, apartment dwellers can participate in gardening by raising indoor flowers and plants. Suburban garden plots are also possible for occupants of multifamily dwellings.

A more romantic explanation for the increasing appeal of leisure time gardening is offered by Dumazedier (1967). He explains that tradition may be an element in the mechanized leisure of our time.

> ...certain traditional activities of the peasant and the craftsman tend more and more to become the leisure occupations of modern society that counterbalance the mechanization and rationalization of work (pp. 59-60).

He cites gardening, along with hunting, fishing, and camping, as four "traditional activities of the peasant and craftsman that are becoming leisure activities of modern society." Whatever the reasons, home gardening is a popular activity, which is continuing to increase in popularity among people of all types.

B. Growth of the Gardening Industry

Accompanying this widespread and increasing interest in home horticultural activities has been the continued growth of a large, complex commercial gardening industry. A 1962 Stanford Research Institute study[3] estimated that the home outdoor leisure market would grow from $3.8 billion in 1960 to about $6.7 billion in the early 1970's.[4] This prediction was not far off. In 1970, the U.S. retail market for garden and lawn supplies had reached nearly $5.7 billion (Home and Garden Supply Merchandiser, 1970). Furthermore during the 9 years from 1958 to 1967, the number of specialized retail garden centers had increased 70 percent. The sales volume had more than doubled, increasing 126 percent (Davidson and Snell, 1971).

In addition, the recent agricultural census reports that more than 18,000 farms are engaged in production of nursery and greenhouse crops. During the past 10 years, the farm value of nursery crops increased from $420 million to over $620 million. The production phase of this industry employs 50,000 people on a full-time basis. This industry estimates that an additional 175,000 people are given seasonal or part-time employment. The retail sales segment of the industry employs a similar number of people.

It is apparent from these figures that a large part of the population is involved in various ways and to varying degrees in home gardening. They are either amateur gardeners, professionals, or employees in a

---

[1] Tables from this study reprinted in DeGrazia (1962, pp. 460-462) show that yard and garden activity: increases with age; is about the same for men and women; includes more unemployed women than employed women; is more popular in smaller cities than larger, metro areas; is highest among residents in the north central states and lowest in the eastern states; and is not related to education or household income.

[2] Hoffman (1971) attributes this estimate to Prof. Karl G. Pearson of the University of Michigan. Pearson is further quoted as explaining that the second home is partly a "status symbol," an investment which can serve as a vacation residence and which, when rented out part-time, qualifies for income tax deductibility.

[3] Figures used here are quoted in Sales Management: The Marketing Magazine (1968) directly from "Outdoor Living," a confidential report by the Long Range Planning Service of the Stanford Research Institute, Menlo Park, Calif., copyright 1962.

[4] The SRI report breaks down the market as follows: tools and equipment, $1.9 billion to $3.2 billion; horticultural products and services, $.9 billion to $1.5 billion; lawn and garden chemicals, $.5 billion to $1.1 billion; and outdoor furniture and accessories, $.5 billion to $.9 billion. It further states, according to the Sales Management report, that, while there are many types of retail outlets, those growing fastest will be specialized garden centers and discount stores which will offer the potential purchaser (those ranging from country homeowners with acreage to the smaller twin or row homeowner) everything from fertilizer to patio furnishings.

vast commercial gardening industry. As these numbers continue to increase and as the industry continues to grow, the demand will also increase for home gardening information, assistance, formal or informal training, and continuing education.

C. The Present Project

The situation and trends outlined above are of increasing concern to the Extension Service of the U.S. Department of Agriculture (ES-USDA) as well as to the Cooperative and Agricultural Extension Services of most states. Increasingly, Extension is called upon to provide information and assistance to amateur gardeners and the commercial gardening industry. This increasing demand, especially in the metropolitan areas, is placing a heavy burden on the staffs and resources of many Extension units. It was in response to this growing concern with the informational and educational needs of amateur and professional gardeners that the Minnesota and Wisconsin Extension services entered into a joint project with ES-USDA in January 1971.

The Minnesota-Wisconsin Home Horticulture Pilot Project was designed in three phases to extend over a 3-year period. The first phase was labeled "information gathering" and had the following objectives:

1) Review research literature related to the process and effects of communicating horticultural information to metropolitan and other audiences; and review existing information and educational resource materials related to home gardening.

2) Survey home gardeners and individuals who contact Extension for home horticultural information. This was in an attempt to better understand the home gardening clientele, particularly the dynamics of their information-seeking behavior.

3) Inventory the competencies of Extension and non-Extension personnel working in the area of home horticulture.

4) Review home gardening information programs of Extension services in other metropolitan areas of the country.

Responsibilities for completing Phase I were divided as follows:

Minnesota--Review literature on communication of home gardening information in urban areas; develop survey questionnaires for a series of studies of home gardening clientele; conduct surveys in the Minneapolis-St. Paul area; and inventory the competencies of Extension and nonExtension personnel who work with home gardeners.

Wisconsin--Review existing literature and educational resource materials related to home gardening; conduct surveys of home gardeners in a metropolitan area and in several smaller cities using interview questionnaires developed by the Minnesota group; develop an instrument to inventory the competencies of individuals who work with home gardeners; and administer the competency survey in Wisconsin.

ES-USDA--Survey state Extension services throughout the country to report how different states have attempted to provide home gardening information in urban areas.

Phase II of the Minnesota-Wisconsin Project was to be carried out by pilot project task forces in both states. Each task force was composed of state and county Extension staff members presently involved in Extension home gardening educational and informational programs. Working with the information gathered in Phase I, each task force discussed ways to improve Extension's response to the demand for home gardening information and suggested pilot programs for the second year of the project.

Phase III, the evaluational phase, will consist of a series of studies designed to assess the effectiveness and efficiency of pilot projects implemented in Phase II.

D. A Note on Organization

The remainder of this publication reports findings from the first phase of the three-phase Minnesota-Wisconsin Home Horticulture Project. It consists of three separate parts, reporting projects conducted by Minnesota, Wisconsin, and ES-USDA,respectively.

Bibliography

Cunningham, D.A., H.J. Montoye, H.L. Metzner, and J.B. Keller (1968). "Active Leisure Time Activities as Related to Age Among Males in a Total Population," Journal of Gerontology, 23: 551-556.

Davidson, Harold,and Dennis A. Snell (1971). "Growth and Development of the Garden Center Industry in the United States," HortScience, 6: 12-15.

DeGrazia. Sebastian (1962). Of Time, Work and Leisure. New York: Twentieth Century Fund.

Dumazedier, Joffre (1967). Toward a Society of Leisure. New York: The Free Press.

Hoffman, Emmet J., ed. (1971). "Editorial: Homeowners Still Command Market," Home and Garden Supply Merchandiser, October, p. 7.

Home and Garden Supply Merchandiser (1970). "A Special Report: The U.S. Market (Retail) for Garden and Lawn Supplies," March.

Lundberg, George A., Mirra Komarovsky, and Mary Alice McInerny (1934). Leisure: A Suburban Study. New York: Columbia University Press.

Opinion Research Corporation (1957). "The Public Appraises Movies," A Survey for Motion Picture Associates of America, Inc. Princeton, N.J.: Opinion Research Corp.

Robinson, John P. (1969). "Social Change as Measured by Time Budgets," Journal of Leisure Research, 1: 75-77.

Robinson, John P., and Philip E. Converse (1967). 66 Basic Tables of Time-Budget Data for the United States. Ann Arbor, Mich.: Survey Research Center, University of Michigan.

Sales Management: The Marketing Magazine (1968). "The Backyard Market," Vol. 1, April 1, pp. 23-24.

U.S. Bureau of the Census (1971). Statistical Abstract of the United States: 1971. (92nd Edition). Washington D.C.

Ward J.A., Inc. (1954). A Nationwide Survey of Living Habits. A national survey conducted for the Mutual Broadcasting System. New York: J.A. Ward, Inc.

PART I

THE MINNESOTA REPORT

By Vernon A. Keel

CHAPTER I. BACKGROUND

In recent years, the Minnesota Agricultural Extension Service has experienced a substantial increase in home gardeners' demand for information and assistance. This increased demand is similar to that in other states. However, Minnesota's situation is unique because the University is one of the few land-grant universities located in the center of a major metropolitan area. As a result, the heaviest demand for home gardening information and assistance comes from the nearly two million residents of the Minneapolis-St. Paul area. This demand is felt directly by the State Extension staff and certain university departments.

During June and August of 1972, Extension staff in horticultural science, entomology, plant pathology, and forestry handled a total of nearly 30,000 individual requests for information. Most of this was done by phone. This amounts to well over 2,500 calls per week or nearly 500 per day. It doesn't include calls and letters handled by Extension staff in metro-area county offices.

The Minnesota Agricultural Extension Service has attempted to better meet this growing demand for personal consultation on home gardening problems. Full- and part-time staff members have been added to help handle telephone calls, especially during the busy summer months. Telephone lines have been added. In one department, the phone system was revamped to handle incoming calls more efficiently. In recent years, other steps have been taken to improve Extension's capacity to respond to informational needs of a steadily growing number of urban home gardeners. It seems, however, that this demand continues to be greater than Extension is able to meet. Furthermore, the demand will certainly increase as the area's population continues to grow.

Recent figures from Northwestern Bell Telephone Company show nearly 550,000 telephone households in the Twin Cities metropolitan calling area. These phone subscribers can dial any area number without a toll charge. Thus, Extension is within free and easy reach of well over a half-million households. This number continues to grow.

The population of the Minneapolis-St. Paul Standard Metropolitan Statistical Area (SMSA), which is roughly the same as the telephone calling area, grew over 22 percent during the 1960's. The more than 1.8 million area residents account for nearly 50 percent of the state's 1970 population. Projections to 1985 show a 23 percent increase in the five-county SMSA's population. By 1985, over 2.2 million people (or nearly 54 percent of the state's population) will reside within this area's boundaries. The 1970 census figures show nearly 577,000 households in the Minneapolis-St. Paul SMSA. This is an increase of 30 percent over 1960. While the area's single-family dwellings increased over 15 percent during the 1960-70 period, the two central cities dropped 6 percent. The suburbs increased by over 33 percent.

The state's rural-to-urban population shift, the move from central cities to suburban areas, and the continued increase in single family homes all contribute to the steady growth in the number of urban home gardeners which already constitute one of Extension's largest single clientele groups. As this group continues to grow, the Minnesota Agricultural Extension Service will have to define its role in helping provide information and assistance to metropolitan area home gardeners. Examples of questions to be dealt with include:

* To what extent should Extension serve as a personal consultation service for urban area home gardeners?

* How much of Extension's effort in this area should be on an individual problem-solving basis, and how much should be devoted to broader informational and educational home gardening programs?

* What role will urban county Extension offices play?

* What will be the relationship of state Extension specialists to these county offices?

* How and to what extent will the problem of providing information and assistance to urban home gardeners be dealt with on a metropolitan area-wide basis?

* What will be the nature and extent of the relationship of state and county Extension to the Twin Cities home gardening industry?

In short, the issue boils down to how much should and will Extension help meet informational needs of an ever-growing number of urban home gardeners, and how will it organize itself to do so?

With these questions in mind, it was decided the first step was to find out more about home gardeners, especially those living in the metropolitan area. Several surveys were developed to determine the nature and extent of home gardening activity, to learn more about patterns of media use and information seeking of urban home gardeners; and to learn more about their use of Extension as an information and assistance source.

The research reported here consisted of three separate surveys of home gardeners in the Minneapolis-St. Paul metropolitan area. The first and main survey involved indepth interviews with three samples of home horticulturists. The second survey was telephone interviews of a sample of individuals who phoned either of four university departments or the area's five county Extension offices. The third was a mail survey of individuals who requested copies of the revised edition of Minnesota Extension Bulletin 366, The Home Lawn.

The remainder of this section of the report deals mainly with the design of and findings of the indepth interviews with the three samples of home gardeners. Specifically, Chapter II deals with methodology of the personal interview survey; Chapter III reports findings of data analysis from the random sample; Chapter IV deals with results from comparative analysis of the three interview samples; Chapter V reports findings concerning contact with Minnesota Extension; Chapter VI reports results of the telephone and mail surveys; and the final chapter is a summary and conclusions.

CHAPTER II. THE PERSONAL INTERVIEW SURVEY

A. Study Design

Survey methods were used to collect data for this study. The research design centered around indepth, personal interviews of three samples of home gardeners in the Minneapolis-St. Paul metropolitan area. Interviews were conducted in late May and early June of 1971. Three randon samples were used, one of urban area homeowners, one of persons who had phoned the University of Minnesota's Horticultural Information Center, and one of Twin Cities area members of the Minnesota State Horticultural Society.

1. The Survey Questionnaire

A comprehensive, structured interview questionnaire was developed and pretested in early May 1971. Three professional interviewers conducted 25 pretest interviews. These were with respondents living in three different socio-economic areas of the Twin Cities. The questionnaire was designed to provide detailed information on: the nature and extent of home gardening activities participated in; "preferred;" actual sources of horticultural information; specific information-seeking behavior; knowledge of and interest in home gardening topics; related interpersonal communications behavior, including group membership and perceived opinion leadership; general and topic-related use of the mass media; and basic demographic characteristics. The final version of the questionnaire, which took interviewees about an hour to complete, was administered by a team of professional interviewers. Nearly all of the interviews were conducted during a 3-week period--the last week of May and the first 2 weeks of June 1971.

2. The Three Samples

Random Sample. The principal sample was 350 home gardeners randomly selected from throughout the metropolitan area. For sampling purposes, the metro area was defined as the Twin Cities Urbanized Area. This area is delineated by the Census Bureau on the basis of population density.[1] Using a cluster sampling scheme, 70 clusters or interview areas were randomly selected. Five households were randomly selected within each cluster. To determine the extent of gardening activity in the metropolitan area, the population from which the sample was drawn included all area households. In selected households, the individual was interviewed who the interviewer identified as having primary responsibility for caring for the plant life in and around the home. If no plant life whatsoever was in the household (this was the case in 20 or 5.7 percent of the households sampled), interviewers were instructed to interview the chief wage earner. Thus, this was a sample of households, not of individuals.

Phone-in Sample. The University's Agricultural Extension Service and Department of Horticultural Science operate a year-round Home Gardening Information Center. Home gardeners can phone or write the center for information on yard and garden problems or topics. Persons who contact the center for this information were considered to represent active home gardening information seekers. Thus, the first 2 weeks of June, 75 persons were randomly selected from those who had phoned the center for yard and garden information. The name and telephone number of every fifth caller (a 20 percent sample) were recorded by the person taking the call. Within several days after each call, interviewers contacted the selected respondents and arranged for a personal interview. The questionnaire used was essentially the same as that used for the other two samples. Several questions were added concerning the respondent's call to the center.

Hort Society Sample. To include a sample of individuals who are active in home gardening groups and associations, 50 metropolitan area members of the Minnesota State Horticultural Society were randomly selected and interviewed. The sample was selected from the society's membership list. The 2,236 metro area members were identified by zip code. Individuals chosen for interviews were notified by letter in advance. The letter was from the project director. Several days later, interviewers contacted respondents by phone to arrange for a personal, indepth interview.

B. The Principal Variables

Included in the study were standard demographic variables such as age, sex, education, occupation, household income, and socio-economic status. Also included were situational or background variables such as city-suburb location, type of home, whether the respondent owns or rents his home, and how active his parents were as home gardeners. These demographic and background variables were incorporated into the study for three reasons. First, to describe the characteristics of the home gardening clientele. Second, to compare those calling the University (information seekers) and the Horticultural Society members (group participants) to each other and to home gardeners in general. And finally, to explore the separate and combined influence of these variables on the nature and extent of home gardening participation (including levels of knowledge and interest), media use, and patterns of information seeking.

1. Measures of Knowledge, Interest, and Activity

Home gardening includes a variety of activities. For this study, it was defined as "the noncommercial growing and caring for of flowers, plants, lawns, trees, shrubs, fruits, and vegetables." Since it is possible for home gardeners to be involved in one or various combinations of such activities, the interview schedule was designed to differentiate between several major types of home gardening activities. The knowledge and interest measures, for example, were structured to tap level of knowledge and interest in four areas of home gardening subject matter: lawns; trees and shrubs; flowers and indoor plants; and fruits and vegetables. In the section on gardening activity, lawns, trees, and shrubs were combined as a separate area of activity. This is because growing and caring for these three types of plants can be considered "yardwork."

---

[1] According to 1970 census figures, about 88 percent of the total population of the Minneapolis-St. Paul Standard Metropolitan Statistical Area (SMSA) reside within the boundaries of this Urbanized Area. Total population of the area is 1,594,844 and includes 515,531 housing units. It should be noted here that any 1970 census information provided in this report is from either the first count (U.S. Bureau of the Census, 1970a) or fourth count (U.S. Bureau of the Census, 1970b) census tapes accessed through the Minnesota Analysis and Planning Systems (MAPS) office at the University of Minnesota, St. Paul.

Knowledge Measures. A pool of 60 true-false knowledge items were generated by the project director and two horticulture professors at the University of Minnesota. The pool consisted of 15 items for each of the four areas (lawns; trees and shrubs; flowers and indoor plants; and fruits and vegetables). The 60 items were pretested on a total of 92 students in four University classes (a lower and an upper division horticulture class, a lower division agricultural journalism class, and an upper division journalism class). Twenty items (five from each of the four knowledge dimensions) were selected after analysis of item discrimination, difficulty, and internal consistency. The 20-item knowledge test was included in the questionnaire. This was administered by the interviewer who read each of the 20 statements and asked the respondent to indicate whether he thought the statement was true or false.

Interest. Single items were used to assess the extent of interest in each of the four dimensions or areas of home gardening activity. The first of the four items read as follows:

> As you know, people vary quite a bit in what they're interested in. Consider the topic of flowers and indoor plants. How interested are you in this topic? Very interested; somewhat interested; not very interested; or not interested at all?

Essentially the same question was asked about interest in lawns and lawn care, trees and shrubs, and vegetable gardening. Items were scored from 0 (no interest) to 3 (very interested). A respondent's score on a single item was used as a measure of interest in that dimension of home gardening. Scores on the four items were summed to provide a measure of overall interest in this leisure time activity.

Activity Measures. A separate, 5-page section of the questionnaire was devoted to the nature and extent of participation in home gardening. This section consisted of three parts dealing with activities related to: flowers and indoor plants; lawns, trees, and shrubs (yardwork); and vegetable gardening. Each part began with questions which determined whether or not the respondent was involved in any way in that area of home gardening activity and also how many hours a week he spends caring for flowers and indoor plants, doing yard work, and raising vegetables. In addition, he was asked to estimate whether he spends more, less, or about as much time as his neighbors at that activity and how much he enjoys it. Since the extent of involvement is important in the model of leisure communications, data analysis deals most directly with the amount of time a person spends each week at each activity. The number of hours devoted to the three activities were summed to indicate the extent of overall participation in home gardening.

2. Group Membership and Opinion Leadership

Measurement of the first of these two variables was simple and straightforward. Following a series of questions aimed at determining how many of what types of groups the respondent belongs to, he was asked if any of the groups he belongs to have anything at all to do with gardening, yard care, flowers, plants, or trees. If so, the interviewer recorded the names of those groups and whether or not the respondent was an officer.[2]

More difficult to measure was home gardening opinion leadership. Katz and Lazarsfeld (1955) developed a self-designation measure, which consisted of two questions (pp. 146-148):

1. Have you recently been asked about...?

2. Compared with other women belonging to your circle of friends, are you more or less likely than any of them to be asked your advice on...?

To check the validity of this measure, they checked with persons named by the respondent as having asked them for advice to determine whether those persons thought the particular respondent was a source of information and advice for them. The results were satisfactory, and this self-designation technique has become a common measure of leadership. Troldahl (1963), for example, used this technique to identify suburban home gardening opinion leaders in Boston, as did Carter and Clarke (1962) in a study of public affairs opinion leadership among educational television viewers.

The problem with this method is that it serves mainly to dichotomize the leadership variable. In the original study, Katz and Lazarsfeld asked the first question in two interviews. If a respondent replied "yes" in both interviews, or if he replied "yes" in one of the two interviews but also replied "more likely" to the second question, he was considered an opinion leader. Those who did not fit the above criteria were considered "nonleaders." This or variations of this technique are generally used, resulting in a dichotomous measure of leadership.

Two factors make this technique unsatisfactory for the present study. First, concern here is primarily with perceived opinion leadership. That is, the extent to which the respondent considers himself to serve as a source of information and advice to others. More important than whether the respondent had actually been asked for information recently is how active he considers himself to be as a source of home gardening information. Second, an opinion leader is something one becomes; and he becomes a source of information and advice for others mainly as he becomes more knowledgeable of and interested and active in home gardening.

Thus in the present study, opinion leadership is considered a continuous variable. It's measured with a two-item scale:

1. About how many persons look to you for opinions or advice on the care of flowers, plants, gardening, the yard and so on?

2. Compared with most people you know...are you more likely, less likely, or about as likely to be asked to give opinions or advice on lawns, shrubs, flowers, or related topics?

Scores for the two items were summed to provide a continuous measure of perceived home gardening opinion leadership.

[2] As part of the coding procedure, the project director determined whether a group mentioned was actually a yard and garden or flower and garden-related group or organization.

3. Media Use and Information Seeking

The media use section of the interview questionnaire contained questions on general use of the mass media. This included radio, television, newspapers, magazines, and books, together with questions about the use of home gardening-related specialized media and exposure to gardening content in the mass media. Measures of home gardening media use included items dealing with: how frequently the respondent watches a special weekly yard and garden television program; the number of home gardening magazines read and how frequently; and how frequently and thoroughly he reads the recreation sections, particularly the weekly gardening columns in the two Twin Cities Sunday newspapers. In addition, at the end of the radio, television, and newspaper and magazine sections of the interview, the respondent was asked to indicate "how likely" he thought he would be to listen to a special home gardening radio program, to watch a home gardening television program, or to read home gardening articles he would come across in newspapers or magazines. Four response choices ranging from not at all likely to very likely were provided for each of the following questions:

> If you were to hear about a new series of radio programs dealing with flowers, plants, gardening, or yard care, how likely would you be to listen to it?
>
> If you were to hear about a new series of television programs that dealt with flowers, plants, gardening, or yard care, how likely would you be to watch it?
>
> If you were to notice in a newspaper or magazine an article that dealt with flowers, plants, gardening, or yard care, how likely would you be to read it?

Each of the three items above were scored from 0 to 3, and the sum of the three scores served as a single measure of the respondent's likeliness to expose himself to media content related to home gardening. The measure was called a Home Gardening Media Likelihood Index.

Questions concerning patterns of information seeking included how many horticultural-type books or references the person owned and how often he consults them; whether he had sought information during the 2 weeks preceding the interview, from whom, and why he consulted that source; whether he gets several opinions on a home gardening-related problem or takes the first advice he can get; whether he discusses such problems with others, and if so, with whom; where he generally goes for home gardening information; which sources of home gardening information he would be most confident in; which sources he would be least confident in; and whether he participates in lectures and short courses related to home gardening.

A final set of questions had to do with the nature and extent of the respondent's contact with the Minnesota Agricultural Extension Service.

CHAPTER III. FINDINGS: THE RANDOM SAMPLE

Results reported in this chapter deal only with analysis of data from the random sample of home gardeners in the Minneapolis-St. Paul metropolitan area. The purpose is to: 1) describe urban area home gardeners in terms of the nature and extent of their home gardening activity as well as their patterns of media use and information seeking; and 2) identify correlates of home gardening activity.

Chapter IV compares the random, phone-in and horticultural society samples.

A. Sample Characteristics

The random sample in this study is of households in the Twin Cities urbanized area; it is not a sample of individuals.[3] Therefore to determine how representative the sample is of households in the metropolitan area, it's necessary to compare sample and census data in terms of household rather than individual characteristics. The four variables selected for comparison are city-suburb location, household race, owner- vs. renter-occupied households, and single vs. multifamily dwellings.

According to Table 1, the sample appears to be representative of urban area households in terms of city-suburb location and household race. There is an obvious bias, however, toward owner-occupied, single family dwellings.

Table 1. Percentage comparisons of census and sample distribution of four household variables (n=350)

Variable	Census	Sample
City-Suburb Location		
City	53.1%	52.9%
Suburb	46.9	47.1
Household Race		
White	97.2	96.9
Negro	1.9	1.7
Other	0.9	1.4
Owner-Renter Homes		
Owner-occupied	63.3	79.7
Renter-occupied	36.7	20.3
Type of Dwelling		
Single family	61.9	76.6
Multifamily	38.1	23.4

[3] See Section A, Chapter II for a description of the sampling procedure. Households were randomly selected; the individual having primary responsibility for caring for the plant life in and around the home was identified and interviewed.

Table 2 shows frequency and percentage distributions of households in the sample in terms of type of dwelling lived in and whether it is rented or owned.

Table 2. Sample frequency and percentage distributions by household type and own or rent

Household Type	Frequency	Percent
Own		
Single family home	255	72.9
Double bungalow	4	1.1
Duplex, Triplex	15	4.3
Townhouse	5	1.4
Rent		
Single family home	13	3.7
Double bungalow	3	0.9
Duplex, Triplex	22	6.3
Apartment	32	9.1
Townhouse	1	0.3
Totals	350	100.0

B. The Nature and Extent of Gardening

When considering urban home gardening, there is a tendency to think mainly in terms of suburbs and the growing number of suburban households. At least two earlier gardening-related studies (Barcus, 1962; Troldahl, 1966) deal exclusively with suburban samples. It is true that recent increases in the number of single family dwellings in urban areas have been almost exclusively in the suburbs. Nevertheless in 1970, still close to 135,000 or about 37 percent of all single family homes in the Twin Cities metropolitan area were located in the central cities of Minneapolis and St. Paul (U.S. Bureau of the Census, 1970a). For this reason, the sample in the present study was drawn from the entire metropolitan area. In the section that follows, however, city and suburban households and home gardeners will be compared to determine what, if any, basic differences exist in the nature and extent of home gardening activity.

1. Home Gardening Households

As expected, home gardening is a popular activity. Of the 350 households included in the Twin Cities sample, 93.7 percent had some kind of gardening project. This figure is no doubt inflated somewhat because of the obvious sampling bias toward owner-occupied, single family dwellings. But even if the percentage were inflated by as much as 15 percent, it would still mean that over three-fourths of metropolitan area households contain some kind of home gardening activity.

Considering types of projects involved households are in, 83.4 percent (292) of the households have flowers and indoor plants; 86 percent (301) have lawns, trees, and shrubs; and 43.1 percent (151) contain vegetables or vegetable gardens. Furthermore, well over one-third of all the sample households (38.6%) contain all three activities, and 41.6 percent have at least two of the three types of gardening projects.

Home gardening is more widespread in the suburban areas than in the central cities. While 10.3 percent of the city households in the sample contain no gardening projects whatsoever, only 1.8 percent of the suburban homes are in that category (X^2=9.19, df=1, $p < .01$). Table 3 shows that while there are no differences between city and suburb percentages of households with flowers and indoor plants and vegetable gardening, suburban homes are more likely to have lawns, trees, and shrubs. But these differences in amount of gardening activity and percentage of households with lawns, trees, and shrubs are explained by the fact that a greater proportion of the suburban homes are owner-occupied, single family dwellings.[4]

Table 3. Percentage of city and suburban households having the three types of gardening projects

Gardening Activity	Percentages City (159)	Percentages Suburb (157)	X^2[a]	P[b]
Flowers and Indoor Plants	80.0	87.3	2.83	< .20
Lawn, Trees, and Shrubs	81.1	91.5	7.04	< .01
Vegetable Gardening	41.1	45.5	0.51	< .50
No Gardening Activities	10.3	1.8	9.19	< .01

[a] Chi-square test of significance with 1 degree of freedom.

[b] In all of the tables that follow, "P" will be used in table headings to indicate the probability of error in rejecting the null hypothesis of no difference between the independent and dependent variables.

2. Respondents' Gardening Activities

Of the 350 persons interviewed, 316 or 90.3 percent were identified as active home gardeners. That is, they have some kind or combination of kinds of gardening projects in their home, and they are actively involved in the care and maintenance of that plant life.[5] Again, more suburban respondents were identified as active in home gardening than was the case for respondents in the central cities of Minneapolis and St. Paul. While 157 or 95.2 percent of the suburban respondents are active home gardeners, 159 or 85.9 percent of the urban respondents are actively involved in gardening projects (X^2=8.36, df=1, $p < .01$).

[4] Owner-occupied homes: central cities, 70.3%; suburbs, 90.3% (X^2=20.4, df=1, $p < .001$). Single family dwellings: central cities, 65.9%; suburbs, 88.5% (X^2=23.5, df=1, $p < .001$).

[5] As indicated earlier, 22 households had no plant life whatsoever. In addition, 12 respondents said they had plants of some kind, but spent no time caring for them. The plants were usually flowers, received as gifts, and self-maintaining. These 12 respondents, along with the other 22, were not considered to be active home gardeners.

As was the case with the household comparisons, Table 4 shows that more of the active home gardeners in the suburbs are involved in yardwork (lawns, trees, and shrubs). This is expected, however, since a larger proportion of suburban than urban homes are single-family, owner-occupied dwellings having yards.

Table 4. Percentage of active home gardeners in central cities and suburbs involved in various types of gardening activities

Gardening Activity	Percentages City (159)	Suburb (157)	X^{2a}	P
Flowers and Indoor Plants	71.1	75.8	0.68	$<.50$
Lawn, Trees, and Shrubs	69.2	82.8	7.29	$<.01$
Vegetable Gardening	40.9	38.2	0.14	$<.80$

[a]Chi-square test of significance with 1 degree of freedom.

3. Home Gardener Characteristics

A number of the standard demographic indicators can be used to describe Twin Cities home gardeners. First of all, while their average age is about 45 years (half are under 42), active home gardeners are found in every age group from 18 to 80. One-third are less than 35; 30 percent are from 35 to 50; 20 percent are from 50 to 65; and the rest (about 15%) are over 65. For the most part, though, they are women (60%), who are married (80%), and who live in their own single-family homes (over 70%). They are about as likely as not to be employed and to be the chief wage-earner, and well over half live in households having an annual income of $10,000 or more. Three-fourths are high school graduates, and nearly two-thirds of these have done work beyond the high school level.

More interesting, though, is how the active home gardeners in the suburbs differ from their counterparts in the central cities. For the most part, suburban home gardeners tend to exaggerate the characteristics of gardeners generally. For example, while persons active in home gardening are most likely to be married and own their own single family homes, suburban gardeners are more likely than gardeners in the central cities to be married and own their own homes. Furthermore, they are younger (41 years compared to 48.4), less likely to be the chief wage earner (but as likely to be employed full-time or part-time), and generally higher in education, income, and chief wage earner's occupation and socio-economic status. The two groups do not differ in terms of respondents' occupation,[6] nor do they differ on sex with about 60 percent of both the city and suburban gardeners being women.

[6] Respondents' occupation, as coded using census categories, proved rather useless because about half of all respondents, being housewives or widows, were placed in what turned out to be a rather vague "other" category.

C. Time Devoted to Gardening Activity

In the present study, respondents were asked to estimate the number of hours spent each week on each of the three major types of home gardening activities. The number of hours devoted to the three activities were analyzed separately and also summed to provide an indicator of the extent of overall participation in home gardening.[7] This section deals with the time dimension of gardening involvement, correlates of home gardening activity, and the interrelationship of knowledge, interest, and activity.

1. Time Spent on Home Gardening

In late spring and early summer, the average Twin Cities home gardener spends an average of 8.8 hours per week on home gardening activities. There is a slight positive skew in the distribution, however; about half the active gardeners spend 5 hours a week or less on home horticultural projects. On the average, most of the time is spent doing yardwork (4 hours) and working with flowers and indoor plants (3.4 hours). Vegetable gardening takes up an average of 1.4 hours per week.

Table 5 compares city and suburban home gardeners' amounts of time devoted to the three types of activities and yard as well as garden projects in general. With the exception of yardwork (lawns, trees, and shrubs), the differences between city and suburban gardeners are not statistically significant. Once again, this greater emphasis on yardwork in the suburbs is explained by the fact that more suburban homes are owner-occupied, single family dwellings or yard-type homes. This is clearly evident when the amount of time devoted to lawns, trees, and shrubs is controlled to include only respondents who actually have yards to care for. While suburbanites with yards spend, on the average, half an hour more than city gardeners (5.5 hours compared to 5.0 hours) on this activity, their difference is not significant ($t=0.80$, $df=238$, $p<.50$).

Table 5. Comparison of city and suburban active gardeners on the number of hours per week devoted to the various gardening activities

Gardening Activity	Hours Per Week City (159)	Suburb (157)	t-score[a]	P
Flowers and Indoor Plants	3.4	3.4	0.04	.966
Lawn, Trees, and Shrubs	3.5	4.6	1.99	.048
Vegetable Gardening	1.2	1.6	1.24	.216
Overall Gardening Activity	8.1	9.6	1.37	.171

[a]T-test of significance of difference between means with 314 degrees of freedom.

[7] Respondents were asked to base their estimates on the time of year during which the interviews were conducted, which was late spring.

2. Correlates of Gardening Activity

Except that a larger proportion of suburban home gardeners live in yard-type homes and therefore spend more time caring for their lawns, trees, and shrubs, the city and suburban gardeners do not differ in the kinds of activities they're involved in nor in the amounts of time devoted to home horticulture. In addition to urban-suburban residence, a number of other demographic variables were introduced into the analysis to determine which, if any, of these variables seem to be correlates of home gardening activity. The variables are:

1) age
2) sex
3) marital status
4) employment status
5) education
6) household income
7) chief wage earner's occupation[8]
8) socio-economic status
9) home ownership (own-rent)
10) type of dwelling (single, multifamily)
11) extent of parents' gardening activity[9]

These variables were examined in terms of a) their relationship to whether or not a respondent is involved in any of the three types of gardening activities; and b) how much time respondents involved in each of the three activities spend each week on that activity and home gardening in general. In other words, interest here is in determining which of these variables are related to the nature of involvement in home gardening (which activities) and the extent of involvement (amount of time).

Nature of Involvement. Table 6 shows which of these 11 variables are positively related to involvement in each of the three categories of gardening activities. Growing and caring for flowers and indoor plants is predominantly a woman's activity, particularly for women who are not employed outside the home. But equally interesting as which variables are related to involvement in this activity is which ones are not. For example, age and marital status have no relationship to this activity, nor does socio-economic status and the related variables of education, income, and chief wage earner's occupation. Persons who live in rented apartments are as likely to raise flowers and indoor plants as are those who live in their own, single family homes. And how active one's parents are or were in home gardening appears to have no connection to whether or not a person is involved in this activity.

The story is quite different for yardwork, which involves caring for lawns, trees, and shrubs. In this case, it would appear that certain role and situational factors are related to involvement. There was a glimpse of this earlier in the finding that suburban home gardeners, who are more likely to own their own single family (yard-type) homes, are also more likely to be involved in this particular activity. Similarly, Table 6 shows home ownership and type of dwelling to be positive correlates of yardwork activity, as is household income, which is positively related to owning a single family home.[10] But while owning a private home, along with the demographic factors that are related to it, may constitute a situational influence on being involved in yardwork activity, there also

Table 6. Demographic variables significantly related to whether a person is involved in each of the three types of home gardening activities[a] (n=316)

Gardening Activity: Independent Variable	X^2	Degrees of Freedom	P
Flowers and Indoor Plants			
Sex (female)	90.79	1	<.001
Employment Status (unemployed)	29.87	2	<.001
Lawn, Trees, and Shrubs			
Sex (men)	50.35	1	<.001
Marital Status (married)	9.72	1	<.01
Employment Status (employed)	21.13	2	<.001
Household Income (positive)	16.41	5	<.01
Home Ownership (own)	11.57	1	<.001
Type of Dwelling (single family)	15.42	1	<.001
Vegetable Gardening			
Marital Status (married)	7.39	1	<.01
Home Ownership (own)	15.28	1	<.001
Type of Dwelling (single family)	7.88	1	<.01

[a]Remaining variables which were not found to be significantly related to involvement in any of the three types of gardening activities are age, respondent's education, chief wage earner's occupation, and extent of parents' home gardening activity.

appear to be certain role characteristics of persons primarily involved in caring for the lawn, trees, and shrubs. Specifically, heads of households (employed, married men) are the ones most likely to be involved in caring for the yard. An obvious explanation for this apparent division of labor in modern households is that yardwork, particularly mowing the lawn, which no doubt takes up more of the homeowner's time than any of the other kinds of activities included in yardwork, is more manual or physical in nature and thereby relegated to or assumed by the husband rather than the wife. Dumazedier (1967) might explain, however, that the man of the household is more likely to be involved in this activity since it is one of the remaining "traditional activities of the peasant" (pp. 59-60); the growing of plants in most peasant farm cultures was clearly a male activity. Whatever the reason or reasons, involvement in yardwork more than caring for flowers and indoor plants (or vegetable gardening, to be discussed next) is the result of a variety of situational and role factors, mainly because of the nature of the activities involved in caring for the yard and its plant life.

Vegetable gardening, according to Table 6, is mainly an activity involving married couples, either husband or wife, who own their own single family homes. These

[8] See Footnote 6 for an analysis of problems involved in using respondent's occupation in data analysis.

[9] Respondents were asked to indicate on a 4-point scale how active their parents were in home gardening: not at all, not very, somewhat, or very active.

[10] Household income is positively related to home ownership (X^2=38.3, df=5, p<.001) and to single family homes (X^2=35.7, df=5, p<.001).

three variables (marital status, home ownership, and type of dwelling) are strongly interrelated,[11] and married couples living in their own home with a yard perhaps have more need for homegrown food for their families. For sure, they have more convenient space for a vegetable garden than do renters of multifamily dwellings. But as was the case with the flowers and indoor plants activity, more interesting than the few variables that are related to vegetable gardening are those which are not; namely, age, sex, whether the person is employed, socio-economic status and related variables, and extent of parent's gardening activity. Vegetable gardening is most strongly linked with situational factors (being married and living in a single family home) than with personal characteristics like age, sex, education, and the like.

Extent of Involvement. The preceding discussion dealt only with factors that are related to whether or not a person is involved in any of the three categories of gardening activities; how much one is involved in activities was not considered. In this part of the analysis, however, the same 11 demographic variables (plus city-suburb location) are related to how much time an individual devotes to home gardening in general and to the three types of activities in particular. With the exception of overall gardening activity, which includes every respondent, correlates of the amount of time devoted to each of the three activities is limited only to those respondents who are actively involved in that activity.[12]

The total amount of time devoted each week to home horticultural activities is positively related to situational factors such as being married ($t=2.24$, $df=314$, $p<.05$), home ownership ($t=3.77$, $df=314$, $p<.001$), and living in a single family dwelling ($t=3.29$, $df=314$, $p<.001$). Amount of gardening activity increases with age ($r=0.12$, $p<.05$) and is correlated slightly with household income (Kendall tau=0.10, $p<.02$) and how active parents were in home gardening (Kendall tau=0.09, $p<.05$). In other words, persons who are married and own their own single family homes have to devote more time to home gardening activities. And as they get older, have fewer outside time commitments, and their children require less time, they can and apparently do spend more time on home gardening. While women (60%) are more likely than men (40%) to be primarily responsible for the gardening activities of the household, women and men involved in home gardening do not differ in terms of the amount of time they devote to this activity. The same is true for the variables of employment status, education, chief wage earner's occupation, and socio-economic status. Thus, aside from the characteristic differences between home owners and nonhome owners, the extent of involvement in home horticultural activity seems to cut through other personal and social differences, although it does increase slightly with age.

As far as the three categories of gardening activities are concerned, it was reported that women who are not employed outside the home are more likely to be involved in caring for flowers and indoor plants. Of those who are actively involved in this activity, however, amount of time devoted to it is related only to home ownership ($t=3.04$, $df=230$, $p<.01$) and living in a single family home ($t=2.0$, $df=230$, $p<.05$). Both relationships are understandable in that having a yard usually means more opportunity for outdoor gardening.

While being involved in yardwork was related to a variety of situational and role variables, how much time a person involved in this activity spends on it is related to home ownership ($t=2.36$, $df=238$, $p<.02$).[13] This seems to increase with age ($r=0.22$, $p<.001$), suggesting that as one gets older, he or she either has more time to devote to and/or more desire to be involved in gardening activities around the yard.

Finally, having a vegetable garden was found to be related to being married and owning a single family home. But of those actually involved in this activity, women ($t=2.23$, $df=123$, $p<.05$) who own their own family home ($t=2.17$, $df=123$, $p<.05$) and are not employed outside the home (Kendall tau=-0.16, $p<.01$) spend more time on vegetable gardening. More interesting, though, is that amount of time devoted to this activity is negatively related to both household income (Kendall tau=-0.16, p .02) and socio-economic status (Kendall tau=-0.14, p .05), suggesting economic or money-saving motivations for raising homegrown vegetables.

D. Knowledge, Interest, Activity

1. Measuring the Three Variables[14]

The measurement of interest and activity was simple and straightforward. Respondents were asked to indicate on a 4-point scale how interested they are in each of the four major areas of home gardening (lawns; trees and shrubs; flowers and indoor plants; and vegetable gardening). Similarly, they were asked to estimate how many hours per week they devote to each of the major areas of gardening activity. In both cases, these responses were treated as scores indicating level of interest and activity in each of the areas of home gardening. These scores were summed to provide an estimate of level of interest and activity in home gardening in general.

Knowledge was somewhat more difficult to measure. Twenty true-false knowledge items were selected from the original pool of 60 items generated by the project director and two horticulture professors at the University of Minnesota. The final 20 items (five from each of the four dimensions of gardening activity) were selected after pretest on the basis

---

[11] Chi-square scores for: marital status by home ownership ($X^2=14.2$, $df=1$, $p<.001$) and by type of dwelling ($X^2=22.9$, $df=1$, $p<.001$); and home ownership by type of dwelling ($X^2=120.4$, $df=1$, $p<.001$).

[12] 232 of the 316 active home gardeners in the random sample (73.4%) are involved in the flowers and indoor plants activity; 240 (75.9%) in caring for lawns, trees, and shrubs; and 125 (39.6%) in vegetable gardening.

[13] The difference in amount of time devoted to yardwork between single and multifamily dwellers was nearly significant at the .05 level of statistical significance ($t=1.81$, $df=238$, $p=.072$). Only 32 of the 240 respondents involved in yardwork lived in multifamily dwellings.

[14] See Section C (Part 1) of Chapter IV for a complete description of procedures used to measure these three variables.

of item discrimination, difficulty, and internal consistency. The 20-item knowledge test was then included in the questionnaire. It was administered by the interviewer who read each of the 20 statements and asked the respondent to indicate whether he thought the statement was true or false. A final point is that each of the four 5-item sets was considered a measure of level of knowledge of the respective subject matter dimensions of home horticulture. In addition, the 20 items used were taken together as a measure of overall knowledge about home gardening. It was this measure, rather than the knowledge scales for the four subareas of gardening, that was most important to the study.

2. Knowledge Scale Reliability

Hoyt analysis-of-variance reliability coefficients were used to estimate the internal consistency reliability of the five knowledge scales. Hoyt coefficients represent the proportion of the total variance of scores in each scale which is reliably due to individual differences among respondents.[15] These coefficients, along with the scale intercorrelations, are shown in Table 7. The Hoyt reliability coefficients (underlined and appearing in the principal diagonal) indicate that only about one-third of the total variance in scores for the first two scales is reliably due to individual differences between respondents. This is compared to about half of the variance for scale three and 60 percent of the total variance for the fourth scale measuring knowledge about lawns and lawn care. While the size of the coefficients for the first two scales is small enough to raise some question about their reliability, there is less concern for the other three scales in which half or more of the total variance appears to be due to individual differences. More important, though, is that the reliability of the 20-item general knowledge scale is quite high. This is particularly important because most of the analysis that follows deals only with overall measures of knowledge, interest and activity.

Table 7. Reliabilities and intercorrelations for the five scale measures of home gardening knowledge (n=316)

Knowledge Scale	1	2	3	4	5
1. Trees and Shrubs	.33[a]				
2. Flowers, Indoor Plants	.31	.39			
3. Fruits and Vegetables	.31	.32	.48		
4. Lawns and Lawn Care	.32	.29	.25	.58	
5. Overall Knowledge	.68	.70	.69	.69	.70

[a]Values (underlined) in the principal diagonal are the Hoyt analysis of variance reliability coefficients. Also, all intercorrelation coefficients are significant beyond the .01 level of statistical significance.

Table 7 also shows that the intercorrelations for the subarea scales are not particularly high, ranging from .25 to .32. All coefficients, however, are significant beyond the .01 level of statistical significance. Also, as one would expect because the 20-item overall knowledge scale consisted of the five true-false items from each of the four separate scales, the intercorrelations between each scale and the overall scale are quite high, ranging from .68 to .70.

3. The Three Variable Relationships

The expectation was that knowledge, interest, and activity would be interrelated, and that these interrelationships would hold for the three major areas of home gardening as well as for home gardening in general.[16] For the most part, these relationships did hold in all four cases. Table 8 indicates that the only exceptions were for the areas of lawns, trees, and shrubs and for vegetable gardening, where there was virtually no relationship between knowledge and activity. Both of these types of activity can involve considerable time in terms of hours per week, and the implication from these findings is that apparently knowledge does not increase proportionately with the amount of time devoted to these two activities. Knowledge and interest and interest and activity, however, are related for these two areas of activity, and the three variables are related for flowers and indoor plants and home gardening in general. This latter finding is particularly important since, as was pointed out earlier, the overall measures of knowledge, interest, and activity are of primary importance to the present study.

Table 8. Pearson correlation coefficients for knowledge, interest and activity for the types of gardening activities

Variable Pairs	Flowers and Indoor Plants (232)	Lawn, Trees and Shrubs (240)	Vegetable Gardening (125)	Overall Gardening (316)
Knowledge-Interest	.29*	.19*	.27*	.28*
Knowledge-Activity	.19*	.00	-.01	.14*
Interest-Activity	.25*	.28*	.33*	.42*

*Denotes coefficients which are significant beyond the .05 level of statistical significance, one-tailed test.

[15] Standard correlational reliability coefficients are equal to the square root of the Hoyt reliability coefficients. Thus, a Hoyt reliability coefficient of .70 is equal to a correlational reliability coefficient of .84. Both of these coefficients indicate that 70% of the total variance is reliable. For a more detailed discussion of the Hoyt reliability coefficient, see Carlson, Dawis, England, and Lofquist (1963), Technical Appendix, pp. 50-51.

[16] While knowledge and interest measures were developed separately for lawns and lawn care and trees and shrubs, in both cases these two measures were combined to form single measures of knowledge of and interest in the subarea of lawns, trees and shrubs (yardwork activity). Yardwork was considered as a single area of home gardening for the activity variable (hours per week).

Thus, knowledge of and interest and activity in home gardening are interrelated. For the three subareas of gardening, these relations also hold, except for yardwork and vegetable gardening where knowledge and activity are not related. The suggestion, however, was that the interrelationship of these three variables was complex and continuous, with increases in one affecting and in turn being affected by increases in the others. If this is true, the prediction would be that the longer that one is involved in home gardening, the more knowledgeable and interested he would be and the more time he would devote to this activity. In short, knowledge, interest, and activity would be expected to increase in a linear way with number of years involved in home gardening. Table 9 shows that this prediction is not supported by available evidence. In none of the three areas of home gardening, nor in home gardening in general, does knowledge relate to years involved. Only for flower and indoor plant activity does interest relate to years. There is no relationship at all between any of the three variables and number of years involved in vegetable gardening. Activity, however, is directly related to years involved for flowers and indoor plants, yardwork, and home gardening in general. Thus, with the exception of vegetable gardening, the longer one is involved in home gardening, the more time he devotes to that activity. And while knowledge, interest, and activity are interrelated, the three variables do not increase equally with years.

Table 9. Pearson correlation coefficients for number of years involved in each of the gardening activities by knowledge, interest, and activity scores for those activities

	Knowledge	Interest	Activity
1. Years involved in Raising Flowers, Indoor Plants (232)	.08	.19*	.25*
2. Years involved Doing Yardwork (240)	-.03	.00	.15*
3. Years involved in Vegetable Gardening (125)	.05	.06	-.08
4. Years involved in Home Gardening Activities (316)	-.02	.00	.18*

*Denotes those correlation coefficients which are significant beyond the standard .05 level of statistical significance using a one-tailed test.

An additional attempt was made to better understand the nature of the relationships between knowledge, interest, and activity, and also the relationship of these three variables to number of years involved in home gardening. Using the respective measures for overall home gardening, eta coefficients of curvilinearity were computed for each of the possible relationship pairs. Table 10 shows, for the total group of 316 active home gardeners, the linear (Pearson) correlation coefficients and eta coefficients, together with the probabilitite of rejecting null hypotheses of zero linear and no curvilinear correlations.

Table 10. Correlation coefficients r and eta, for variable pairs using knowledge, interest, activity and years in home gardening, along with associated p values (n=316)

Correlation Pairs	r	p^a	eta	p^b
Knowledge-Interest	.28	.000	.35	.259
Knowledge-Activity	.14	.011	.41	.112
Knowledge-Years	-.02	.684	.42	.062
Interest-Activity	.42	.000	.58	.008
Interest-Years	.00	.981	.39	.208
Activity-Years	.18	.002	.38	.761

[a]Probability of error in rejecting null hypothesis of zero linear correlation.

[b]Probability of error in rejecting null hypothesis of no curvilinear correlation.

According to results from this table, the strongest linear relationships are between knowledge-interest and activity-years. The eta coefficients for knowledge-activity and knowledge-years are high (.41 and .42, respectively), and the curves for both relationships indicate that knowledge increases slowly but steadily with activity and years. It then begins to level off with activity and decrease slightly after 25-30 years of involvement in gardening. Neither coefficient is significant for the interest-years relationship.

The most interesting of these relationships is between interest and activity. The relationship is strong (r= .42) and curvilinear (eta= .58). The curve of the relationship is similar to that of knowledge-activity, although more exaggerated. That is, interest increases rapidly with activity, levels off, and then begins to taper off slightly. In other words, for people who become involved in home gardening, there is an initial rapid rise in interest in the topic. This interest levels off as activity continues to increase and then begins to tail off as activity increases still further.

To summarize, the data reported here support positive relationships between knowledge, interest, and activity. However, while knowledge and interest tend to increase together in a linear fashion, both increase quite rapidly in the early stages of involvement in home gardening, level off as activity continues to increase, and then taper off slightly as length and extent of involvement increase still further.

4. Determinants of Gardening Involvement

It is useful at this point to introduce an additional concept: gardening "involvement"--the extent to which one is totally involved in home gardening. To separately consider either knowledge, interest, or activity by themselves is to deal with but one dimension of gardening involvement. But to consider these three key variables jointly, given the nature of their interrelationships, is to deal in a more complete way with the extent to which one is truly "involved" in that activity. In short, knowledge, interest, and activity are considered here as the main dimensions of gardening involvement and, taken together, reflect the level of one's involvement in home gardening.

To deal with these three variables as a single concept, an Involvement Index was developed using the weighted values of knowledge, interest, and activity.[17] Scores for this index ranged from 0 to 9, and the distribution approached normality with both the mean and median being 4.7 and the mode 5.0. For descriptive purposes and to show the relationships between level of involvement and nominal scale variables, the distribution of involvement scores was divided into three fairly equal groups representing low, middle, and high involvement in home gardening. Otherwise, the involvement index is treated as an ordinal variable when considering its relationship to other ordinal or interval scale variables.

Before examining the influence of home gardening involvement on topic-related media use and information-seeking, the involvement variable was related to the 13 demographic variables used earlier in an attempt to identify which of these might be considered as determinants of gardening involvement. Table 11 shows the chi-square scores for the six nominal demographic variables cross-classified with the three levels of involvement. Table 13 gives the Spearman rank correlation coefficients (rho) for the ordinal and interval scale variables by involvement index values. According to these results, age, sex, employment status, and wage earner's occupation have no relationship to level of involvement in home gardening. However, involvement is greater for persons who are married and own single family homes (See Table 12 for percentage distributions of these variables by the three levels of involvement). Also, gardening involvement increases with education, income, and socio-economic status. Finally, how active a person's parents were as home gardeners seems to have some influence on the extent to which he becomes involved in that activity.

Table 11. Chi-square values for nominal demographic variables by three levels of home gardening involvement (n=316)

Variable Name	X^2	Degrees of Freedom	P
Sex	1.15	2	<.70
Marital Status	14.82	1	<.001
Employment Status	3.17	4	<.70
Wage earner's Occupation	16.33	16	<.50
Home Ownership	21.77	2	<.001
Type of Dwelling	13.75	2	<.01

[17] The raw score distributions for each of these three variables were separated into four equal groups. For each variable, the weighted values ranged from 0 (lower quartile) to 3 (upper quartile). The weighted values for the three variables were then summed to form a new value for the Involvement Index.

Table 12. Percentage distribution of significant demographic variables by three levels of home gardening involvement

Variable Name	Involvement Level Low	Middle	High	X^2[a]	P
Married	67.3%	82.1%	89.7%	14.82	<.001
Own Home	73.1	87.3	97.4	21.77	<.001
Single Family Dwelling	72.1	82.1	93.6	13.75	<.01
	100.0	100.0	100.0		
	(104)	(134)	(78)		

[a]Chi-square values with 1 degree of freedom.

Table 13. Spearman correlation coefficients (rho) for ordinal and interval distribution demographic variables by involvement score

Variable Name	rho	P
Age (316)	-.02	.384
Education (316)	.12	.015
Household Income (299)	.14	.002
Socio-economic Status (299)	.19	.001
Parents' Gardening Activity (316)	.15	.004

E. Topic-Related Mass Media Use

Two types of variables were used to measure home gardening mass media use: a) actual exposure to gardening media and topic-related media content; and b) likelihood of exposure to these media.

Actual Exposure. The University of Minnesota, through its Agricultural Extension Service, sponsors a weekly television program which deals exclusively with home horticulture topics and issues. The program "Yard and Garden" is broadcast during the gardening season (mid-May through August) at 9 P.M. Wednesdays on KTCA-TV, the educational channel. The program is rebroadcast Saturday mornings on WTCN-TV, a local independent television station. Respondents were asked to indicate how frequently they watched this special home gardening program.

Both of the Twin Cities Sunday newspapers, the Minneapolis Sunday Tribune and St. Paul Sunday Pioneer Press, publish special leisure sections weekly. For the Tribune, it is the "Home and Recreation" section; for the Pioneer Press it is the "Living and Leisure" section. Both sections contain a special weekly gardening column published year-round. The column in the Tribune is written by Leon C. Snyder, and the one in the Pioneer Press is written by Robert A. Phillips. Both are horticulture professors at the University, and both have been writing these columns for a number of years. Respondents were first asked which, if any, Sunday newspapers they read. Readers of the Sunday Tribune were asked how frequently they read the "Home and Recreation" section and how frequently they read the Snyder column on home gardening. Readers of the Sunday Pioneer Press, similarly, were asked how frequently they read the special leisure section and garden column of that paper.

Finally, all respondents were asked to name the magazine they read regularly. During coding, the number of magazines mentioned that were defined as home gardening or gardening-related magazines was summed, forming the variable of number of home gardening magazines read regularly.

Likelihood of Exposure. The variables mentioned above were the only ones that afforded the opportunity to assess actual exposure to home gardening media and topic-related media content. So in addition to those measures, a series of "likelihood" questions were asked during the media use section of the questionnaire. That is, respondents were asked to indicate how likely they would be to listen to (watch) a special radio (television) program if they were to hear about it. Also, they were asked to indicate (on a 4-point scale) how likely they would be to read home gardening articles they might come across in a newspaper or magazine. Finally, the coded responses to these three variables were summed to form a special Home Gardening Media Likelihood Index which is nothing more than a convenient way to look at one's overall likelihood of exposing himself to topic-related media content. The obvious weakness of these "likelihood" measures is that what people say they are likely to do is frequently less than what they actually do. Nevertheless, this is a useful additional way to examine the influence of home gardening involvement on media use.

1. Predicting Home Gardening Media Use

Following the finding of a strong interrelationship between knowledge, interest, and activity, it was expected that these three variables are directly related to exposure to specialized gardening media and to home gardening content in the mass media. To test this proposition, the Involvement Index, which expresses the combined influence of knowledge, interest, and activity, was examined in relation to the 10 media use variables described above. The first step in this part of the analysis was to compute Spearman correlation coefficients (rho's) for each of the media use variables by Home Gardening Involvement. Table 14 shows the rho coefficients, which range from 0.26 for "Yard and Garden" viewing to 0.55 for the Media Likelihood Index. All of the coefficients are statistically significant, supporting the prediction that the combined influence of knowledge, interest, and activity on home gardening media use is positive and direct.

To examine the relationship between demographic variables and home gardening media use, Spearman correlation coefficients were computed for age, education, income, and socio-economic status by each of the 10 media use variables. Two main conclusions came from this analysis. First, the correlation coefficients for the Involvement Index by every one of the 10 media use variables is substantially larger than the corresponding coefficients for each of the four demographic variables. Second, while all of the coefficients for involvement by media use are significant (all but one are beyond the .001 level of statistical significance), none of the four demographic variables is significantly related to more than four of the media use variables. Age is positively related to readership of the two Sunday garden columns and to the number of home garden magazines read regularly. Education is related only to frequency of watching the "Yard and Garden" television program and readership of the recreation section of the Minneapolis Tribune. Income and socio-economic status are only related to the four newspaper variables: readership of the recreation sections and garden columns of the two Sunday newspapers.

Table 14. Spearman correlation coefficients (rho) for media use by home gardening involvement index

Media Use Variable	N[a]	rho	P
Frequency watch "Yard and Garden" television program	316	.26	<.001
Frequency read Home and Recreation section of Minneapolis Tribune	197	.32	<.001
Frequency read garden column in this section of Tribune	197	.32	<.001
Frequency read Living and Leisure section of St. Paul Pioneer Press	99	.28	<.003
Frequency read garden column in this section of Pioneer Press	99	.51	<.001
Number of garden magazines read regularly	316	.27	<.001
Likelihood of listening to home gardening radio programs	316	.49	<.001
Likelihood of watching home gardening television program	316	.46	<.001
Likelihood of reading gardening articles in newspaper or magazine	316	.52	<.001
Home Gardening Media Likelihood Score	316	.55	<.001

[a] Questions concerning readership of the leisure sections and garden columns of the St. Paul and Minneapolis Sunday papers were asked only of those persons who said they read that paper at all.

In short, findings from this phase of analysis indicate that the value of these demographic variables is limited in accounting for variations in home gardening media use. However, they provide additional support for the prediction that use of the mass media for gardening information can be best explained by considering the combined influence of knowledge, interest, and activity.

2. Describing Use of the Mass Media

For descriptive purposes and to aid in analysis of home gardening media use, the sample of active gardeners was divided into three groups based on scores on the Involvement Index. Thus, these groups represent three levels of gardening involvement: low; middle; and high. They will be compared in terms of their use of radio, television, newspapers, and magazines for home gardening information.

Radio. At the time this study was conducted, there were no radio programs broadcast in the Twin Cities area that dealt specifically with topics related to

home gardening. So the only way to compare gardeners on their use of radio for topic-related information was to pose a hypothetical situation. Respondents were asked how likely they thought they would be to listen to such a program if they were to hear about one, provided it was on at a convenient time of day. The obvious weakness in a question like this has already been pointed out: what people say they would do is not always the same as what they would actually do. However, while the responses may not be completely reliable for survey or descriptive purposes, such an item can be useful for comparing types of gardeners on their likelihood of exposure to such media content.

Just over one-fourth of all active gardeners in the study said that they would not be at all likely to listen to such a program if it were available (Table 15). It's not important here whether or not this percentage is accurate compared to what actual exposure to such a program might be. What is important is that the expressed likelihood of listening to a home horticultural program is obviously influenced by the extent of one's involvement in gardening.

Table 15. Likelihood of listening to gardening radio program by level of involvement (percent)

Likelihood Response	Level of Involvement Low	Middle	High
Not At All	51.9	20.1	7.7
Not Very Likely	15.4	14.9	6.4
Probably Listen	23.1	35.8	30.8
Very Likely Listen	9.6	29.1	55.1
	100.0	100.0	100.0
(X^2=74.58, df=6, p<.001)	(104)	(134)	(78)

Television. Here it is possible to measure actual exposure to media content that deals specifically with home gardening. "Yard and Garden" is an Extension-sponsored television program which is broadcast weekly during the growing season on an educational and commercial channel in the Twin Cities. At the time the study was conducted, the format of the program included Extension specialists from the University who answered viewers' questions, written or telephoned, about horticultural problems and issues. As Table 16 indicates, only 10 percent of the active gardeners in the study ever watch the program (two-thirds of those viewers watch it on the educational channel). Only two percent watch it on the educational channel. Only two percent watch the program nearly every week. While this may seem low at first, it is fairly consistent with most educational television findings which show not much more than 2-to-3 percent viewership for most ETV programs. However, "Yard and Garden" is specifically a gardening program, and the 2 percent figure represents 2 percent of a sample of active home gardeners.

Table 16. Frequency of viewing "Yard and Garden" television program by level of involvement (percent)

Viewing Frequency	Level of Involvement Low	Middle	High
Never Watch It	99.0	89.6	78.2
Less Than Once a Month	0.0	6.0	6.4
About Once a Month	1.0	3.7	7.7
Almost Every Week	0.0	0.7	7.7
	100.0	100.0	100.0
(X^2=21.3, df=2, p<.001)[a]	(104)	(134)	(78)

[a] Because of the low frequency in a number of cells, the values had to be regrouped (never watch it, watch it) for computation of chi-square.

Support for the caution about what people say they would do not always being the same as what they actually do can be found by comparing the distribution of responses in Table 16 to those of Table 17, the TV likelihood item. While nearly 90 percent of all respondents indicated they never watch the "Yard and Garden" television program, only 35 percent said they would be not very or not at all likely to watch such a program. As expected, there is an upward bias in such hypothetical items. It is also possible, however, that the gardening television program is not sufficiently advertised and that potential viewers simply do not know about it.

Table 17. Likelihood of watching horticultural television program by level of gardening involvement (percent)

Likelihood Response	Level of Involvement Low	Middle	High
Not At All Likely	44.2	11.2	3.8
Not Very Likely	16.3	17.2	7.7
Probably Watch It	29.8	34.3	35.9
Very Likely to Watch	9.6	37.3	52.6
	100.0	100.0	100.0
(X^2=77.1, df=6, p<.001)	(104)	(134)	(78)

The important point, though, is that in both the hypothetical and actual situations, watching such a program and the expressed likelihood of watching such a program are strongly related to the extent of involvement in home gardening.

Newspapers. Of the 316 active home gardeners in the study, 197 or 62 percent read the Minneapolis Sunday Tribune and 99 or 31 percent read the St. Paul Sunday Pioneer Press. Each paper contains a special recreation or leisure section, and each section contains a special year-round column on home gardening. Readers of each paper were asked how frequently they read the respective recreation section and garden column. Over 90 percent of the Sunday Tribune readers read the recreation section of that paper (75% read it almost every week). Results are similar for the St. Paul paper (88% read the section; 71% read it almost every week). In both cases, readership is positively related to level of involvement in home gardening (Tribune: X^2=15.6, df=4, p<.01; Pioneer Press: (X^2=12.5, df=4, p<.02).

Of direct concern was readership of the two gardening columns and the relationship of this variable to level of gardening involvement. Tables 18 and 19 indicate that readership of these columns is not as high as that of the recreation sections in which they

appear. However, most Tribune readers (76%) read the column by Dr. Snyder. This is compared to 71 percent of the Pioneer Press readers who read Dr. Phillips' weekly column in that paper. Again, attention is called to the key finding in both cases that readership of these special gardening columns is strongly related to level of involvement in home gardening.

Table 18. Readership frequency of gardening column in Sunday Tribune by level of home gardening involvement (percent)[a]

Readership Frequency	Level of Involvement Low	Middle	High
Never Read It	39.6	27.4	2.0
About Twice a Month	29.2	39.3	42.9
Almost Every Week	31.3	33.3	55.1
	100.0	100.0	100.0
(X^2=21.3, df=4, p<.001)	(55)	(90)	(52)

[a]This question was asked only of those respondents who indicated that they read the Minneapolis Sunday Tribune.

Table 19. Readership frequency of gardening column in Sunday Pioneer Press by level of involvement (percent)[a]

Readership Frequency	Level of Involvement Low	Middle	High
Never Read It	48.4	19.4	15.0
About Twice a Month	29.0	30.6	5.0
Almost Every Week	22.6	50.0	80.0
	100.0	100.0	100.0
(X^2=19.1, df=4, p<.001)	(39)	(38)	(22)

[a]This question was asked only of those respondents who indicated that they read the St. Paul Sunday Pioneer Press.

Magazines. The only measure of magazine use was a question concerning the number of home gardening magazines the respondent reads regularly. Results from this item (Table 20) show that most gardeners do not read topic-related magazines regularly. Of those who do, most read only one. Nevertheless, consistent with other findings, the more involved gardeners are more likely to read such magazines and to read more of them.

At the end of the questionnaire's section on newspaper and magazine use, respondents were asked to indicate how likely they would be to read articles on topics related to home gardening that they might come across in newspapers and magazines. Most said they would probably or very likely read them (Table 21). And likelihood of reading such articles is highest for the high-involved gardeners and lowest for the low-involved.

Table 20. Number of gardening magazines read regularly by level of gardening involvement (percent)[a]

Number of Magazines	Level of Involvement Low	Middle	High
None	85.6	76.9	55.1
One	13.5	20.1	32.1
Two or More	1.0	3.0	12.8
	100.0	100.0	100.0
(X^2=27.9, df=4, p<.001)	(104)	(134)	(78)

[a]None of the low- or middle-involved gardeners read more than two gardening magazines regularly. Close to 3 percent of the high-involved read three; none read more than three.

Table 21. Likelihood of reading newspaper or magazine article on gardening by level of gardening involvement (percent)

Likelihood Response	Level of Involvement Low	Middle	High
Not At All Likely	25.0	3.0	0.0
Not Very Likely	21.2	15.7	0.0
Probably Read It	33.7	34.3	24.4
Very Likely Read It	20.2	47.0	75.6
	100.0	100.0	100.0
(X^2=87.3, df=6, p<.001)[a]	(104)	(134)	(78)

[a]The chi-square value is unreliable because of the two zero cells in the table. However, the direction of the relationship is obvious, and the relationship is statistically significant with the rho coefficient .52 (See Table 14).

F. Patterns of Information-Seeking

In addition to predictions about level of involvement and media use, it was expected that the more knowledgeable, interested, and active home gardeners will also be more active seekers of garden information. Furthermore, they will be more discriminating seekers of information in that they will be more likely to consult commercial, institutional, and other "expert" sources.

A number of questions included in the interview schedule attempted to tap these dimensions of information seeking. As was the case in the previous section, results reported here will be controlled on level of involvement in home gardening. The first part of this section deals with some general patterns of information seeking, while the remainder deals with actual, usual, and preferred sources of information. What necessitated this distinction between types of information sources (actual, usual, preferred) is that what people prefer to do is not always the same as what they usually do; and what they say they usually do is not the same as what they actually do. In short, the last part of this section reports findings from questions concerning where respondents, who had actually sought gardening information shortly before the interview, went for this information; where they say they "usually" go for this information; and, given the choice, what source of information they would prefer or have most confidence in.

1. General Patterns of Seeking Behavior

Personal Library. One of the handiest sources of information for the active home gardener is his own library of related reference books and informational materials. Nearly two-thirds of the gardeners interviewed either owned personal lawn and garden reference books (38%) and/or saved informational materials they came across (54%). In both cases, level of involvement has a positive relationship. The more involved a person is in home gardening, the more likely he is to own more reference books (Table 22) and to save informational material (Table 23). Regarding the former, not only are the more involved people more likely to own reference books, but none of the low-involved individuals owned more than two such references. None of the middle-involved gardeners owned more than three. Close to 10 percent of the high-involved owned four, and nearly 3 percent had seven or more.

Table 22. Number of home gardening books owned by level of involvement (percent)[a]

Number of Books Owned	Level of Involvement Low	Middle	High
None	80.4	58.1	41.7
One	16.5	29.9	30.6
Two or More	3.1	12.0	27.8
	100.0	100.0	100.0
(X^2=34.8, df=4, p<.001)	(97)	(117)	(72)

[a]Thirty of the respondents either did not know if they had any gardening-type books of their own or mentioned books which were not considered to be gardening references.

Table 23. Whether respondent saves horticultural reference materials by level of gardening involvement (percent)

Saves Reference Materials	Level of Involvement Low	Middle	High
Yes	24.0	47.8	73.1
No	76.0	52.2	26.9
	100.0	100.0	100.0
(X^2=43.3, df=2, p<.001)	(104)	(134)	(78)

The 195 respondents who said they owned their own gardening books and/or saved related informational materials were asked if they had consulted these references anytime during the month preceding the interview (Table 24). Nearly half of them had, and again the three groups differed in the predicted direction. More of the high-involved gardeners had consulted their personal gardening library, and they had consulted it more frequently than had the other two groups. There was the same kind of difference between the middle- and low-involved gardeners.

Table 24. Use of horticultural references in past month by level of gardening involvement (percent)[a]

Use of References	Level of Involvement Low	Middle	High
Not At All	83.8	59.6	35.9
Once or Twice	10.8	24.5	26.6
Several Times	5.4	16.0	37.5
	100.0	100.0	100.0
(X^2=26.4, df=4, p<.001)	(37)	(94)	(64)

[a]This question was asked only of respondents who said they owned their own gardening reference books and/or saved such reference they came across.

Gardening Discussion. Questions were asked concerning respondents' "discussion" of home horticulture. First, they were asked if they generally discussed gardening with other people they know; and if so, with whom.

On these items, there were no differences between the three involvement groups (Table 25). About two-thirds of the gardeners interviewed said they discuss gardening and related topics with other people they know. And they were about as likely to do so with relatives (42%) as they were with neighbors (46%) and friends (44%). Also, there were no differences, as Table 25 indicates, between the three involvement groups in terms of whom they usually visit with about home gardening.

Table 25. Chi-square values for discussion of home gardening with others (percent)

Variable	Level of Involvement Low (104)	Middle (134)	High (78)	X^{2a}	P
Discusses Gardening with Other People	61.3	70.5	67.9	2.12	<.50
Of Those who Do (212), With Whom:					
Relatives	38.6	43.0	43.4	0.35	<.90
Neighbors	36.8	49.5	49.1	2.57	<.30
Friends	43.9	38.7	54.7	3.51	<.20
	(65)	(95)	(53)		

[a]Chi-square values with 2 degrees of freedom.

Special Classes, Lectures, Etc. University Extension, garden stores, flower and garden clubs, and other groups occasionally sponsor special classes, lectures, workshops, and the like which deal with any variety of home horticultural problems, topics, or issues. Respondents were asked if they had attended any of these kinds of activities during the previous year. Only six (less than 2%) said they had. One of these was in the low-involved gardener group, one in the middle-involved, and the other four were high-involved home gardeners. The difference between the three groups was not statistically significant (X^2=5.81, df=2, p<.10). However, when asked how

interested they would be in attending such an activity, only one-third said they would have no interest at all (Table 26). Close to one-fourth said they would be very interested. Again, expressed interest in attending such classes or workshops is positively related to level of gardening involvement.

Table 26. Respondent's interest in attending special gardening-related classes, workshops, or lectures by level of involvement (percent)

Interest in Attending	Level of Involvement Low	Middle	High
No Interest	56.7	24.6	16.7
Some Interest	34.6	47.8	48.7
Very Interested	8.7	27.6	34.6
	100.0	100.0	100.0
(X^2=44.7, df=4, p<.001)	(104)	(134)	(78)

2. Sources of Gardening Information

Actual Sources. One third of the gardeners interviewed had actually sought information on some aspect of home gardening during the 2-week period before the interview (Table 27). The likelihood of having sought information increased with level of involvement. This supported the prediction that the more involved home gardeners are more active seekers of information. However, on the basis of actual seeking

Table 27. Whether respondent sought gardening information in past 2 weeks by level of involvement (percent)

Sought Gardening Info	Level of Involvement Low	Middle	High
Yes	21.2	38.8	39.7
No	78.8	61.2	60.3
	100.0	100.0	100.0
(X^2=10.2, df=2, p<.01)	(104)	(134)	(78)

behavior reported here, there is little support for the second prediction that they would be more discriminating seekers of such information. Possible information sources were grouped into four categories: interpersonal (relatives, neighbors, and friends); expert (university specialists and garden stores); mass media; other sources (including personal references, public library, person's own knowledge, and the like). Table 28 shows that the only source type on which the three involvement groups differ is the interpersonal type. Over 80 percent of the low-active gardeners who had sought information during the 2 weeks before the interview had contacted relatives, neighbors, or friends. This is compared to about two-thirds of the middle-involved group and less than half of the high-involved group.

Table 28. Chi-square values for differences in actual sources of information by level of involvement (n=105)[a]

Actual Information Source	Level of Involvement Low (22)	Middle (52)	High (31)	X^2[b]	P
Interpersonal	81.8	67.3	48.4	6.59	<.05
Expert	27.3	34.6	45.2	1.89	<.50
Mass Media	0.0	1.9	6.5	2.25	<.50
Other Sources	0.0	7.7	12.9	3.04	<.30

[a]Includes only those (33.2%) active gardeners who had actually sought information during the 2 weeks before the interview was conducted. Also, respondents could have sought information from one or more of the source types listed above.

[b]All chi-square values with 2 degrees of freedom.

However, concerning the other three source types, the three groups did not differ significantly on percentage of actual information seekers who had consulted "expert" sources (36%), the mass media (3%), or other sources (8%). Thus, the only support here for the prediction that the more involved gardeners will be more discriminating seekers of information is in the finding that the more involved one is, the less likely he is to consult relatives, neighbors, or friends who generally would be considered to be less "expert" than university specialists, garden store operators, or the like.

Usual Sources. Respondents were asked where they "usually" go for gardening information when they have a problem. The response choices were again grouped into the four source categories: interpersonal; expert; mass media; and other sources. Also, they could indicate more than one type of source. About 43 percent said they usually consult relatives, neighbors, or friends; 40 percent said "expert" sources; 8 percent said the mass media; and 24 percent indicated that they usually refer to "other" sources of information. The only significant difference between the three involvement groups, as Table 29 shows, concerns the consulting of "expert" sources. As predicted, the more involved gardeners, being more discriminating seekers of information, are more likely to consult such sources for gardening information. Otherwise, the three groups do not differ.

Table 29. Chi-square values for differences between usual sources of information by level of involvement (percent)[a]

Usual Information Source	Level of Involvement Low (104)	Middle (134)	High (78)	X^2[b]	P
Interpersonal	47.1	44.0	34.6	3.01	<.30
Expert	29.8	42.5	51.3	8.93	<.02
Mass Media	7.7	6.7	12.8	2.49	<.20
Other Sources	22.1	22.4	28.2	1.15	<.70

[a]Respondent could name more than one source.

[b]Chi-square values with 2 degrees of freedom.

Preferred Sources. On a still higher level of abstraction, home gardeners in the survey were asked to indicate which single source type they would have most confidence in for gardening information. They were given a list of four possible sources and asked to name one. The one selected was considered to be the preferred source of information, provided it was available. Again, the source types were grouped into four categories.

As would be expected, those sources considered to be "expert" sources of information were the ones in which most of the gardeners would have confidence or prefer (58%, See Table 30). The mass media was the one source type that fewest (10%) would prefer. However, when comparing the distribution of responses for the three involvement groups, the differences were not statistically significant.

Table 30. Preferred sources of information by level of gardening involvement (percent)

Preferred Info Source	Level of Involvement Low	Middle	High
Interpersonal	26.0	18.7	12.8
Expert Sources	48.1	64.2	62.8
Mass Media	12.5	7.5	10.3
Other Sources	13.5	9.7	14.1
	100.0	100.0	100.0
(X^2=9.5, df=6, p<.20)	(104)	(134)	(78)

Preferred, Usual, and Actual Response Differences. A final point in the analysis of information sources has to do with discrepancies between preferred, usual, and actual response choices. The original reason for including three levels of questions on information-seeking was the belief that what people prefer to do is not always the same as what they say they usually do and what they say they usually do is not always the same as what they actually do.

Table 31 shows the response differences for preferred, usual, and actual sources of information related to the two main source categories: interpersonal and expert. The percentages clearly indicate that the study's home gardeners are less likely to have most confidence in interpersonal sources than they are to usually consult such sources and they are less likely to usually consult such sources than they are to actually do so. Just the opposite is true of responses to the "expert" source types. Two explanations for this variation are possible, and possibly both are part of a more complete explanation. First, in a survey interview respondents tend to bias responses to hypothetical questions to their own advantage; that is, to present themselves to the interviewer in the best light. Second, it is perfectly possible that while a person would have most confidence in and actually prefer one of the more "expert" sources for his gardening information, all things being equal, the fact of the matter is that all things are not equal. The expert source may not be as accessible. Faced with the choice of getting "expert" information as opposed to getting satisfactory information from a more readily available source (a friend or neighbor), the latter is the reasonable, compromise choice.

Table 31. Percentage comparisons of interpersonal and expert source types by preferred, usual, and actual sources of information

Source Type	Preferred	Usual	Actual
Interpersonal	19.6 (62)	42.7 (135)	64.8 (68)
Expert Sources	58.5 (185)	40.5 (128)	36.2 (38)

The word of caution here, then, is that there are gross differences in the kinds of responses one gets from asking a person to indicate his preferred, usual, or actual source of information on any topic. With that in mind, the researcher should determine in advance just what it is he wants to know.

G. Group Membership and Opinion Leadership

Group membership and opinion leadership were expected to be two main factors contributing to changes in needs for and uses of information. These in turn result in changes in patterns of media use and information seeking. Specifically, the prediction was that group membership and perceived opinion leadership would be positively related to use of the media for home gardening information and to seeking of information from expert, knowledgeable sources other than the mass media.

Group Membership. This variable proved rather useless in analysis since only 16 or 5 percent of the gardeners in the sample said they belong to any kind of flower or garden group whatsoever. Percentage-wise, over twice as many of the high-involved gardeners belong to such groups as do middle- or low-involved. In real numbers, though, the difference between four, five, and seven persons from each of the three involvement groups was not statistically significant (Table 32). Given the low occurrence of gardening group membership, it was not possible to relate this variable in a meaningful way to dependent variables dealing with media use and information seeking.

Table 32. Whether respondent belongs to gardening-type group by level of involvement (percent)

Belongs to Garden Group	Level of Involvement Low	Middle	High
Yes[a]	3.8	3.7	9.0
No	96.2	96.3	91.0
	100.0	100.0	100.0
(X^2=3.3, df=2, p<.20)	(104)	(134)	(78)

[a]None of the low- or middle-involved active gardeners belonged to more than one gardening group, and only 2.6% of the high-involved belonged to two.

Opinion Leadership. The leadership index was constructed to include a six-interval range with scores ranging from 0 to 5 (See Chapter IV, Section 3). The score distribution was slightly skewed in a positive direction (mean, 1.9; median, 1.7; mode, 1.0). The raw distribution of scores was used for correlational analysis, but divided into three groups (low, middle, and high) for contingency problems.

The prediction was that perceived opinion leadership would increase with knowledge, interest, and activity, and that the more one sees himself as a source of information and advice for others, the more he will expose himself to topic-related content in the mass media and the more active and discriminating information seeker he will be.

On the first point, all three variables--knowledge, interest, and activity--were found to be positively related to perceived opinion leadership with Spearman correlation coefficients ranging from .17 (knowledge) to .41 (activity). Table 33 also shows that the combined influence of these three variables, expressed in the Home Gardening Involvement Index, is positively related to leadership. All coefficients are statistically significant. This relationship is also apparent in Table 34 where the three involvement groups are compared in terms of their responses to the question about whether anyone had asked them for gardening information during the 2 weeks before the interview.

Table 33. Spearman correlation coefficients (rho's) for opinion leadership scores by knowledge, interest, activity,and involvement index (n=316)

Opinion Leadership By:	rho	P
Knowledge	.17	.001
Interest	.39	.001
Activity	.41	.001
Involvement Index	.45	.001

Table 34. Whether respondent was asked for gardening information during 2 weeks before interview by level of involvement (percent)

Was Respondent Consulted	Level of Involvement Low	Middle	High
Yes	12.5	29.9	38.5
No	87.5	70.1	61.5
	100.0	100.0	100.0
(X^2=17.06, df=2, p<.001)	(104)	(134)	(78)

More of the high-involved had been consulted than had middle-involved gardeners, and the latter more so than the low-involved. The relationship was in the predicted direction and statistically significant. Of the one-fourth of respondents who had been asked for information, there was no difference between the involvement groups in terms of whether they had been asked by a relative, neighbor, or friend.

Also supported were the predictions about perceived opinion leadership being related to more active use of the media for gardening information and leaders being more active and discriminating seekers of information. Opinion leadership is significantly and positively related to all of the 10 media use variables in the study. And while none of the Spearman coefficients were larger than those between level of involvement and media use, they are larger than the ones showing the correlation between demographic variables and measures of media use.

Table 35. Level of opinion leadership by whether respondent had been asked for gardening information in past 2 weeks (percent)

Was Respondent Consulted	Level of Leadership Low	Middle	High
Yes	7.7	24.7	59.5
No	92.3	75.3	40.5
	100.0	100.0	100.0
(X^2=73.6, df=2, p<.001)	(143)	(89)	(84)

Concerning the information seeking variables, the relationships between opinion leadership and variations in seeking behavior were significant and in the predicted direction with two exceptions. One exception was the question about whether the respondent usually discusses gardening with people he knows. As was the case with the comparison between the three involvement-level groups, two-thirds of the respondents said they do. There is no difference between leadership groups in this regard. The other exception is that there was no difference between leadership groups on whether they had actually sought information during the two weeks before the interview. About one-third of all three groups had.

In all other instances, though, opinion leadership was related to information seeking as predicted by the model of leisure communication. Those gardeners who see themselves as sources of information and advice for other home gardeners are more likely to own their own reference books, to save related informational materials they come across, and to have consulted these references in the month preceding the interview. They are more likely to have attended gardening-related classes, workshops,and lectures in the past year and to express greater interest in attending such activities in the future. While the leadership groups do not differ in whether they had sought information during the 2 weeks before the interview, as predicted, those higher in perceived leadership were more likely to have consulted expert sources and the mass media for information and less likely to have contacted interpersonal sources such as relatives, neighbors, and friends. Similarly, as far as the "usual" and "preferred" sources of information are concerned, those higher in perceived opinion leadership are more likely to usually consult and prefer to consult with expert sources and the mass media. They are less likely to contact sources in the interpersonal category.

Finally, but most important, is that the more likely one is to perceive himself as a source of information and advice for others, the more likely he is to have actually been asked for information during the 2 weeks before the interview was conducted (Table 36).

Table 36. Chi-square values for differences in who asked respondent for information by level of opinion leadership (n=83)[a]

Who Asked for Information	X^2[b]	P
Relative	1.21	.70
Neighbor	0.27	.90
Friend	1.03	.70

[a]Includes only those (26.3%) active gardeners who had been asked for information during the 2 weeks before the interview.

[b]All chi-square values with 2 degrees of freedom.

Only about one-fourth of all respondents had been asked for information during that time. Over half of the high leader group and one-fourth of the middle leadership group had been consulted, compared to only about 8 percent of the low group. This finding was expected, of course, but nevertheless it does offer some criterion validity for the perceived opinion leadership index. It serves to demonstrate that the extent to which one perceives himself to be a source of information for others is strongly and positively related to his performance as an information source.

H. Summary

The main purpose of this chapter was to: 1) describe urban area gardeners in terms of the nature and extent of their home gardening activity as well as their patterns of media use and information seeking; and 2) identify correlates of home gardening activity. While results were reported and discussed in some detail, it is possible to summarize in rather broad, sweeping strokes some of the main findings from this part of the data analysis.

First of all, participation in home gardening activities is widespread with over 90 percent of the households in the sample having some kind or combinations of gardening projects. In reality, though, this percentage may not be quite so high because of the sampling bias toward owner-occupied, single family homes. Nevertheless, home gardening is a popular leisure time activity. The proportion of home gardening households and amount of gardening activity are somewhat higher in the suburbs than central cities, particularly participation in yardwork. This difference was seen to be due mainly to the fact that there are more privately owned single family homes in suburban areas.

Work with flowers and indoor plants is an activity involved in mostly by women who are not employed outside the home. Yardwork, however, is done more by married men who are the chief wage earners.

Vegetable gardening is done equally as much by men as women, although most likely by couples who own their own single family home. How much time one devotes to gardening activities overall increases with age, household income, and how active his parents were as home gardeners. Amount of activity also increases with being married and owning a home, but there is no difference between men and women in how much time they spend weekly on gardening activity.

As expected, knowledge of and interest and activity in home horticulture are interrelated. Knowledge and interest have more of a straight line or linear relationship, and both are related to activity in a curvilinear fashion. Both, and particularly interest, seem to increase rapidly with activity, level off, and then tail off some as amount of activity increases still further.

To consider the combined influence of these three variables on media use and information seeking, a special Gardening Involvement Index was constructed using the weighted values of knowledge, interest, and activity. Scores on the Involvement Index were strongly and positively related to every one of the 10 variables used as indicators of media use. In all cases, gardening involvement was a better predictor of variations in media use than were any of the 12 standard demographic variables used in analysis. Similarly, the findings in almost every instance showed that the more involved one is in home gardening, the more active and discriminating seeker of topic-related information he will be.

Finally, since only about 5 percent of the gardeners interviewed belonged to any flower or gardening groups, it was impossible to test the relationship between special group membership and media use and information seeking. Opinion leadership, however, was found to be strongly and positively related to level of involvement in home gardening as well as to use of the mass media. Also, the more one perceives himself as a source of gardening information and advice for others, the more active and discriminating seeker of information he is.

CHAPTER IV. FINDINGS: THE THREE SAMPLES COMPARED

In addition to the random sample of urban home gardeners, indepth interviews were also conducted with two other samples of gardeners in the Minneapolis-St. Paul metropolitan area. One was a sample of individuals who had phoned the University's Horticultural Information Center for home gardening information; the other was a sample of metro area members of the Minnesota State Horticultural Society. These two additional samples were included in the study for descriptive purposes to compare these two special samples with each other and to home gardeners in general.

It is important to point out, however, that two major assumptions were made about the three samples selected; both assumptions involved representativeness. First, while the random sample was considered to be representative of Twin Cities home gardeners in general, the phone-in sample[18] was assumed to be representative of individuals who phone the University's Horticultural Information Center for gardening information. The society sample was assumed to be representative of metropolitan area members of the horticultural society. Second, it was assumed that the three samples actually represent three different types of active home gardeners. The random sample should include the broad range of home gardening types. The phone-in sample, on the other hand, was thought to represent a type of gardener who is a high-active information seeker, and the society sample was assumed to be representative of home gardeners who are high-active group members. In short, the second assumption was that the three samples represent home gardeners in general, active information seekers, and active group members.

On the basis of these assumptions, it was predicted that members of the horticultural society would be more heavily involved than the other two groups in all aspects of home gardening--including involvement in topic-related communications activity--and that the phone-ins or information seekers would be more heavily involved than home gardeners in general. Society members were expected to be: the most knowledgeable of and interested and active in home gardening; the most active group members and opinion leaders; the heaviest users of gardening media and topic-related content in the mass media; and the most active and discriminating seekers of information. On all of these behavioral dimensions, the prediction was that the phone-in sample would be lower or less active than society members, but higher or more involved in all aspects of home gardening than gardeners in general.

A final note has to do with the size of the two special samples. Both the sample of 75 callers to the university and 50 members of the horticultural society are smaller than desirable. Cost considerations, however, dictated the size of these two samples. So while smaller than might be preferred, it was felt that both samples were adequate for the descriptive as well as the analytical purposes of the study.

[18] From here on the sample of callers to the University will be referred to as phone-ins or the phone-in sample, and the sample of horticultural society members will be referred to as society members or the society sample. In table displays, the former will be labeled "phonein," and the latter "hortsty."

A. Demographic Comparisons

The 12 demographic or personal variables described in the previous chapter were also used to compare the three samples of active home gardeners.[19] Table 37 gives the chi-square values for differences between the three groups on these variables.

Table 37. Chi-square values for three-sample comparison on demographic variables

Variable Name	Chi-square	Degrees of Freedom	P
Age[a]	11.7	6	$<.10$
Sex	15.4	2	$<.001$
Marital Status	10.7	2	$<.01$
Employment Status	5.4	4	$<.30$
Education	27.0	6	$<.001$
Household Income	30.8	10	$<.001$
Wage earner's Occupation	38.5	10	$<.001$
Socio-economic Status[b]	40.8	12	$<.001$
City-Suburb Location	5.5	2	$<.10$
Home Ownership	7.1	2	$<.05$
Type of Dwelling	18.9	2	$<.001$
Parents' Gardening Activity	6.5	6	$<.50$

[a] Mean age differences (random, 44.7; phonein, 42.4; hortsty, 48.8) were not statistically significant when F-test for differences between means was computed ($F=2.5$, $p=.081$).

[b] F-test for differences between means ($F=17.2$, $p<.001$). Scheffe comparisons on pairs of means, however, shows that phonein and hortsty are not different ($F=1.3$, $p=.260$). Random sample mean does differ from phonein ($F=6.7$, $p<.01$) and from hortsty ($F=13.2$, $p<.001$).

For all but four of the variables included in this part of the analysis, the differences between samples are statistically significant. The exceptions are age, employment status, city-suburb location, and extent of parents' gardening activity. About half of the respondents in all three samples are not employed at all outside the home. Over half indicate that their parents were very active in home gardening.

For the other two variables (age and city-suburb location) on which the samples do not differ significantly--that is, at the usual .05 level of statistical significance--the probability of error in rejecting the null hypothesis of no differences between groups, in both cases, is less than .10. On the average, the phone-ins are youngest (42.4 years), compared to 44.7 years for respondents in the random sample and 48.8 years for society members. Also, the differences

[19] This chapter deals only with those individuals in each of the three samples who are presently active in home gardening. Thus, the random sample does not include the 34 respondents who either do not have any gardening projects in their households or who do but do not spend any time caring for these plants. Also, one of the phone-ins and one of the society members were not presently active in any of the areas of gardening activity and were thus eliminated for this part of the analysis.

between the three groups in where they live (central city or suburbs) are nearly significant with almost two-thirds of the phone-ins living in the suburbs. This is compared to about 50 percent for the other two samples.

On all eight of the remaining demographic or personal variables, the three groups differ significantly. On all but one (marital status), phone-ins and society members are alike and both differ from home gardeners in general. Nearly all of the phone-ins are married, compared to about three-fourths of the respondents in the two other samples. But with that exception, individuals who call the university for gardening information are like metro area members of the horticultural society, and both groups are different from home gardeners in general.[20]

Phone-ins and society members are more likely to be women (80% compared to 60%, approximate), and to live in their own single family homes (95% compared to 85%, approximate). More important, though, is that on all of the socio-economic variables (education, income, wage earner's occupation, and S-E-S index), phone-ins and society members are alike and both groups are significantly higher than home gardeners in general.

B. Gardening Variables

One of the assumptions concerning types of gardeners represented by the three samples was that society members would be higher in overall knowledge, interest, and activity (more totally involved in this area of leisure activity) than phone-ins who would be higher than the general sample of home gardeners. To test this assumption, the three samples were compared on: a) percentage of respondents involved in each of the three areas of gardening activity; b) number of years involved in home gardening; and c) measures of overall knowledge of and interest and activity in home gardening in general.

According to Table 38, the three groups do not differ in terms of percent of respondents involved in yardwork (lawns, trees, and shrubs), but do differ in the other two areas of gardening activity. In the case of flowers and indoor plants, phone-ins and society members are almost identical, and both differ significantly from the random sample of home gardeners (p .01 in both cases). For vegetable gardening, the main difference is between the random sample and society members, with phone-ins in between, being similar to society members (X^2=0.14, df=1, p<.80) and nearly different, in terms of statistical significance, from the random sample (X^2=2.28, df=1, p<.20).

Society members, older on the average than the other two groups, have been involved in home gardening activities for a longer period of time (Table 39). Scheffe comparisons of the three possible pairs of sample means show, however, that society members have been active gardeners longer than phone-ins or gardeners in general. Also, the latter two groups do not differ significantly from each other in this regard.

[20] For those variables on which the differences between the three samples were found to be statistically significant, further analysis was done to determine how each group differed from the other. On variables measured at the interval or ratio level, Scheffe comparisons were run on each sample pair. In contingency problems, chi-square values were computed for random-phonein, random-phonein, random-hortsty, and phonein-hortsty tables.

Table 38. Chi-square values and sample percentages of the three samples by active gardeners involved in gardening activities

Gardening Activity	Sample Percentages Random	Phonein	Hortsty	X^{2a}	P
Flowers and Indoor Plants	73.4	90.5	93.9	18.11	<.001
Lawns, Trees, and Shrubs	75.9	81.1	75.5	0.94	<.70
Vegetable Gardening	39.6	50.0	55.1	5.97	<.05

[a]Chi-square test of significance with 2 degrees of freedom.

Table 39. F-tests for mean score differences between samples on number of years in gardening with Scheffe comparisons

Variable	Sample Means Random (316)	Phonein (74)	Hortsty (49)	F	P
Years Involved in Gardening	18.9	18.0	25.0	4.37	.013

Scheffe Comparisons

Random-Phonein:	F=0.13, p=.876
Random-Hortsty:	F=3.90, p=.020
Phonein-Hortsty:	F=3.61, p=.027

The three groups differ in knowledge of and interest in home gardening (Tables 40 and 41). And in both cases, society members and phone-ins are about the same, and both are higher than the random sample (See Scheffe comparisons). This is particularly the case in level of interest in gardening where mean scores for phone-ins and society members are almost identical.

Table 40. F-tests for mean score differences between samples on knowledge of home gardening with Scheffe comparisons

Variable	Sample Means Random (316)	Phonein (74)	Hortsty (49)	F	P
Overall Gardening Knowledge	10.0	11.9	13.2	24.39	.001

Scheffe Comparisons

Random-Phonein:	F=9.68, p=.001
Random-Hortsty:	F=18.35, p=.001
Phonein-Hortsty:	F-1.93, p=.144

Table 41. F-tests for mean score differences between samples on interest in home gardening with Scheffe comparisons

Variable	Sample Means Random	Phonein	Hortsty	F	P
Overall Gardening Interest	7.5	9.4	9.5	23.67	.001

Scheffe Comparisons

Random-Phonein:	F=15.41, p=.001
Random-Hortsty:	F=11.98, p=.001
Phonein-Hortsty:	F= 0.02, p=.984

The pattern of difference between the three groups is different, though, for the activity variable. While the number of hours per week devoted to home gardening is lowest for gardeners in general and highest for society members and the difference between the three groups is significant, the mean score difference for the random and phone-in samples is not statistically significant (Table 42). The between-groups differences, however, are in the predicted direction with Twin Cities gardeners spending, on the average, just under 9 hours per week on gardening activities. This is compared to about 12 hours for phone-ins and 19 hours for members of the horticultural society.

Table 42. F-tests for mean score differences between samples on hours per week devoted to overall gardening with Scheffe comparisons

Variable	Sample Means Random	Phonein	Hortsty	F	P
Hours Per Week Gardening	8.8	11.9	19.0	18.43	.001

Scheffe Comparisons

Random-Phonein:	F=2.29, p=.100
Random-Hortsty:	F=17.70, p=.001
Phonein-Hortsty:	F=5.98, p=.003

However, the three groups do differ in the predicted direction on the Home Gardening Involvement Index which was constructed using the weighted values of knowledge, interest, and activity. Means scores are lowest from the random sample (4.7), higher for the phone-ins (6.5), and highest for society members (8.7). Mean score differences between each of the three groups are statistically significant (random-phonein: F=1.66, $p<.001$; random-hortsty: F=22.45, $p<.001$; and phonein-hortsty: F=37.31, $p<.001$).

C. Group Membership, Opinion Leadership

The three groups were expected to differ both in terms of a) number of gardening groups belonged to; and b) extent to which they perceived themselves to be and actually serve as sources of information and advice for others. The prediction was that society members, selected because they belong to at least one such group, would be more active group members and sources of information than those individuals who phone the university for information. Also, the phone-ins would be more active on both dimensions than home gardeners in general.

On group membership, the findings were not exactly as predicted. First of all, the society members belong to more of all kinds of groups on the average (5.4) than do either phone-ins (2.6) or respondents in the random sample (2 groups). While the differences between the three groups are significant (F=43.47, $p<.001$), Scheffe comparisons on pairs of means were significant for all but the difference between the random and phone-in samples (F=1.73, p=.177). The same is true for number of home gardening groups belonged to (Table 43). On the average, society members belong to about two such groups. In terms of sample percentages, only about 5 percent of the respondents in the random and phone-in samples belong to any gardening groups whatsoever. Of those who do, most belong to only one. All of the society members, naturally, belong to gardening groups; but 40 percent belong to two, and nearly 20 percent belong to three or more. In short, group membership represents one of the key differences between the society sample and the other two groups. And phone-ins do not, as expected, differ from home gardeners in general in either total group membership or membership in gardening-type groups.

Table 43. F-tests for mean number of gardening groups belonged to for the three samples with Scheffe comparisons

Dependent Variable	Sample Means Random (316)	Phonein (74)	Hortsty (49)	F	P
Number of Gardening Groups	0.06	0.09	1.92	332.63	.001

Scheffe Comparisons

Random-Phonein:	F=0.16, p=.854
Random-Hortsty:	F=326.29, $p<.001$
Phonein-Hortsty:	F=218.41, $p<.001$

However, the three samples do differ as predicted on both perceived and actual opinion leadership. Scores on the index of perceived leadership (the measure of the extent to which one perceives himself to be a source of information and advice to others) differ for the 3-sample comparison (F=25.59, $p<.001$). And Scheffe comparisons of the three pairs of means indicate that each of the three groups differs from the other two (Table 44).

Table 44. F-tests for mean score differences between samples on index of perceived opinion leadership

Variable	Sample Means: Random (316)	Phonein (74)	Hortsty (49)	F	P
Opinion Leadership Index	1.9	2.4	3.3	25.59	.001

Scheffe Comparisons

Randon-Phonein: F=3.89, p=.02
Random-Hortsty: F=24.15, p=.001
Phonein-Hortsty: F=7.36, p=.001

Similarly, the three samples differ in terms of actually having been consulted for information during the 2 weeks before the interview (Table 45). About one-fourth of the random sample respondents had been consulted during that time period, compared to 40 percent of the phone-ins and nearly 70 percent of the society members. Again, each sample differs from the other two beyond the .05 level of statistical significance. However, of those who had been asked for information or advice, the three samples differ on who asked them only with respect to friends. More society members had been asked by friends. The random and phone-in samples did not differ from each other in this regard (X^2=0.01, df=1, p<.99). And there were no sample differences in being asked by relatives or neighbors.

Table 45. Chi-square values and percentage comparisons of the three samples by whether they were asked for information and by whom

Variable	Sample Percentages: Random (316)	Phonein (74)	Hortsty (49)	X^2[a]	P
1. Asked for Information during 2 weeks before interview	26.3	40.5	69.4	37.4	.001
2. Of those who Were, by Whom:					
Relatives	33.7	23.3	23.5	1.8	.50
Neighbors	43.4	63.3	50.0	3.5	.20
Friends	27.7	30.0	64.7	14.9	.001

[a]All chi-square values are with 2 degrees of freedom since variables listed had yes-no response choices.

In summary, phone-ins and gardeners in general are not likely to belong to groups, while society members are active in a number of gardening as well as other kinds of groups. However, the three samples differ as predicted on both perceived and actual opinion leadership (random, lowest; hort society, highest), and society members are more likely than respondents in the other two samples to be asked for information by friends.

D. Topic-Related Media Use

The same variables used as indicators of home gardening media use in the previous chapter were also used to compare the three samples. The prediction was that both actual and likelihood of exposure to gardening media and topic-related content in the mass media would increase from the random sample to phone-ins to society members. The results of these comparisons, by medium, are as follows.

Radio. With no radio programs specifically dealing with home gardening broadcast in the Twin Cities area, the only measure of radio use for gardening information was the question about likelihood of listening to such a program if it were broadcast at a convenient time. The three groups were found to differ in this regard (Table 46), but not exactly as predicted. The random sample differed significantly from both the phone-in and society samples, but phone-ins indicated that they would be as likely to listen to a horticultural radio program as would society members (X^2=4.17, df=3, p<.30).

Table 46. Three sample comparisons on likelihood of listening to special gardening radio programs

Likelihood Responses	Sample Percentages: Random	Phonein	Hortsty
Not At All	27.5	14.9	22.4
Not Very Likely	13.0	13.5	4.1
Probably Listen	30.4	23.0	18.4
Very Likely Listen	29.1	48.6	55.1
	100.0	100.0	100.0
(X^2=22.5, df=6, p<.001)	(316)	(74)	(49)

Respondents were also asked to indicate how many hours per week they spend listening to radio. The average for the random sample was about 12 hours, compared to 11 hours for the other two groups. The differences were not significant (F=0.33, p=.723). So while the three groups do not differ in terms of radio use generally, phone-ins and society members indicate they are equally likely to listen to a gardening-type radio program and both are more likely to do so than gardeners in general.

Television. Hours per week watching television is about the same for society members and phone-ins (Table 47) who both watch television less, on the average, than do respondents in the random sample. The story is different, though, for viewership of the weekly gardening program "Yard and Garden." Table 48 shows that the difference between the three groups is in the predicted direction. Viewership is highest for society members and lowest for the random

sample. Statistically, however, the difference between the random and phone-in samples is not significant (X^2=4.96, df=3, p<.20).[21]

Table 47. F-tests for mean score differences between samples on hours per week watching television with Scheffe comparisons

Variable	Sample Means: Random (316)	Phonein (74)	Hortsty (49)	F	P
Hours per Week Watching TV	16.7	12.6	10.8	6.92	.001

Scheffe Comparisons

Random-Phonein:	F=3.23, p=.039
Random-Hortsty:	F=4.74, p=.009
Phonein-Hortsty:	F=0.33, p=.723

Table 48. Three sample comparisons of frequency of viewing "Yard and Garden" television program

Viewing Frequency	Sample Percentages: Random	Phonein	Hortsty
Never Watch it	89.9	81.1	63.3
Less Than Once a Month	4.1	8.1	14.3
About Once a Month	3.8	8.1	18.4
Almost Every Week	2.2	2.7	4.1
	100.0	100.0	100.0
(X^2=27.6, df=6, p<.001)[a]	(316)	(74)	(49)

[a]Because of the low frequency in a number of cells, this variable was also regrouped into "never" and "sometimes" categories. The difference was still significant (X^2=25.5, df=2, p<.001).

Finally, as was the case with likelihood of listening to a gardening radio program, the three groups differ on likelihood of listening to such a television program (Table 49). The difference is between phone-in and society samples which are alike (X^2=1.92, df=3, p<.70) and the random sample (p<.01 in both comparisons).

Newspapers. Table 50 shows the chi-square values for comparisons between the three samples on the four newspaper variables--readership of the two leisure sections of the Sunday papers and the gardening columns in those sections. The groups differ on all four variables, and the differences are in the predicted direction for both the Minneapolis Tribune Sunday section and garden column (random, lowest; hort society, highest). Because of some low cell frequencies, readership of the "Living and Leisure" section of the Sunday Pioneer Press had to be recoded into two categories: read less than twice monthly; and read almost every week. With this recoding, the difference between the three groups is significant; but when the sample pairs are compared, none of the differences are significant beyond the .05 level. The greatest difference was between the random sample and society sample (X^2=2.00, df=1, p<.20). Readership of the St. Paul paper's weekly gardening column was highest for phone-in and society members, and these two groups did not differ from one another (X^2=1.80, df=2, p<.50).

Table 49. Three sample comparisons of likelihood of watching horticultural television program

Likelihood Responses	Sample Percentages: Random	Phonein	Hortsty
Not At All	20.3	12.2	10.2
Not Very Likely	14.6	9.5	4.1
Probably Watch It	33.2	28.4	36.7
Very Likely to Watch	32.0	50.0	49.0
	100.0	100.0	100.0
(X^2=16.5, df=6, p<.02)	(316)	(74)	(49)

Table 50. Chi-square values for frequency read Sunday recreation sections and garden columns by the three samples

Readership Of:	Chi-square	Degrees of Freedom	P
Tribune Recreation Section	11.7	4	.02
Tribune Garden Column	32.7	4	.001
Pioneer Press Recreation Section[a]	4.6	2	.05
Pioneer Press Garden Column	11.8	4	.02

[a]Because there were no respondents in either the phonein or horticultural society samples that did not read this section of the Pioneer Press, the variable was recoded into two categories: those who read less than twice monthly and those who read almost every week.

Magazines. Individuals who phone the university for gardening information are similar to home gardeners in general in the average number of all kinds of magazines they read regularly. Both groups read less than do members of the horticultural society (Table 51).

However when it comes to gardening magazines specifically, the three groups differ as predicted. The random sample of gardeners are least likely to read fewer such magazines, and society members are most likely to be reading them and to read more of them.

[21] Due to the low frequency in some cells of the complete tables, the X^2 value was recomputed by regrouping the dependent variable as "never" and "sometime" viewers. The difference was still not significant for the random and Phone-in samples (X^2=3.65, df=1, p<.20).

Table 51. F-tests for mean score differences between samples on number of all magazines read with Scheffe comparisons

Variable	Sample Means Random (316)	Phonein (74)	Hortsty (49)	F	P
Total Number, All Magazines	2.1	2.6	4.2	22.61	.001

Scheffe Comparisons

Random-Phonein: F=1.63, p=.196
Random-Hortsty: F=22.33, p=.001
Phonein-Hortsty: F=9.27, p=.001

As table 52 shows, over two-thirds of all society members read at least one gardening magazine regularly, with half reading two or more; 40 percent of the phone-ins read at least one, and 10 percent read two or more. Only one-fourth of the random sample of home gardeners read gardening magazines, and most of these read only one such magazine regularly. And when asked how likely they would be to read topic-related articles they might come across in newspapers or magazines, the three groups differ from one another (Table 53), and they differ in the predicted direction (random, least likely; hort society, most likely).

Table 52. Three sample comparisons on number of garden magazines read regularly

Number of Garden Magazines Read	Sample Percentages Random	Phonein	Hortsty
None	74.4	60.8	30.6
One	20.9	29.7	18.4
Two or More	4.7	9.5	51.0
	100.0	100.0	100.0
(X^2=100.07, df=4, p<.001)	(316)	(74)	(49)

Table 53. Three sample comparisons on likelihood of reading home gardening articles in newspapers or magazines

Likelihood Response	Sample Percentages Random	Phonein	Hortsty
Not Very Likely	23.1	10.8	0.0
Probably Read It	31.6	20.3	24.5
Very Likely Read It	45.3	68.9	75.5
	100.0	100.0	100.0
(X^2=30.1, df=4, p<.001)[a]	(316)	(74)	(49)

[a]The chi-square value is unreliable because of the zero cell in the table. However, the direction of the relationship is obvious.

On the overall Media Likelihood Index (sum of scores for the three "likelihood" items), the phone-in and society samples are the same, and both are higher than the random sample of gardeners.

In summary, with the exception of the number of hours spent each week listening to radio, the three samples in the study differ on all of the variables used to determine home gardening media use. The pattern of differences, however, is not always the same, although society members are consistently the greatest users of the mass media. Gardeners in general are least likely to expose themselves to gardening media or to topic-related content in the mass media.

The pattern of differences between the three groups, then, varies mainly because of the phone-in sample. This sample was found to be either a) like the random sample, with both differing from society members (frequency of watching "Yard and Garden" and total number of all magazines read); or b) somewhere between the random and society samples (frequency of reading the two Sunday recreation sections and the Tribune's garden column, the number of gardening magazines read regularly, and likelihood of reading gardening articles in newspapers or magazines); or c) like society members with both groups differing from the random sample (likelihood--radio program, television program, and overall media likelihood index; hours watching television; and frequency of reading the gardening column in the Sunday Pioneer Press).

E. Patterns of Information Seeking

The three types of home gardeners differ in the predicted direction in terms of the number of horticultural reference books they own and have in their personal library (Table 54). Most of the society members have two or more such books (nearly one-fourth have five or more), while most respondents in the random sample have none. Phone-ins are in between.

Table 54. Sample comparisons on home gardening books owned

Number Books Owned	Sample Percentages Random	Phonein	Hortsty
None	61.5	38.6	19.5
One	25.5	37.1	12.2
Two or More	12.9	24.3	68.3
	100.0	100.0	100.0
(X^2=75.4, df=4, p<.001)	(286)	(70)	(41)

However, phone-ins are as likely as society members to save informational material they come across (X^2=2.99, df=1, p<.10). Gardeners in the random sample are less likely than either of the two groups to do so. However, in terms of actual behavior, phone-ins were only as likely as gardeners in general to have consulted their personal references in the month preceding the interview (Table 55). While nearly three-fourths of the society members had done so, only about half of the random and phone-in samples had. And the difference between the two is not significant (X^2=2.10, df=2, p<.50). So on these three first information seeking variables, the mixed

pattern of differences between the three groups observed in the media use section is already apparent with the phone-ins being either like one of the other groups and different from the other, or somewhere in between the two.

Table 55. Three sample comparisons on use of horticultural references in past months

Use of References	Sample Percentages Random	Phonein	Hortsty
Not At All	56.4	46.0	27.1
Once or Twice	22.6	27.0	18.7
Several Times	21.0	27.0	54.2
	100.0	100.0	100.0
(X^2=23.1, df=4, p<.001)	(195)	(63)	(48)

But a different pattern of response differences emerged on the question of whether the respondent discusses home gardening topics and issues with other people he knows. Here, as Table 56 indicates, phone-ins are least likely to do so, random samples are next, and society members are most likely. This represents a major departure from the patterns of differences between the three groups and is the only variable on which the phone-ins are lower than both the random and society samples. More will be said about this difference in this chapter's summary section.

Table 56. Chi-square values and percentage comparisons of the three samples on discussion of home gardening

Variable	Sample Percentages Random (316)	Phonein (74)	Hortsty (49)	X^{2a}	P
1. Do You Discuss Gardening with People you Know	67.0	48.6	77.6	12.4	<.01
2. Of Those who do, with Whom:					
Relatives	41.9	51.4	44.7	1.1	<.70
Neighbors	45.8	31.4	26.3	6.6	<.05
Friends	44.3	45.7	73.7	11.2	<.01

[a]All chi-square values are with 2 degrees of freedom since variables listed had yes-no response choices.

Of those who do discuss gardening with other people they know, the three groups differ in terms of whom they talk to with the general sample of gardeners most likely to talk to neighbors and society members most likely to talk to friends.

Society members are more likely than the other two groups to have attended special classes, workshops, or lectures on gardening and related topics during the past year. Just about half of the society members had attended such activities during that time. This is compared to about 2 percent of both the random and phone-in sample respondents. Close to 20 percent of the horticultural society members had attended two or more.

However when asked to indicate how interested they would be in attending such an activity, the three groups differ from each other (Table 57). Phone-ins are less interested than society members, but more so than gardeners in general. One point is necessary here, though, and that has to do with the fact that many of these kinds of lectures and workshops are actually sponsored by flower and gardening groups for their members. So while respondents were not asked how interested they would be in joining such a group, the interest of phone-ins in attending an educational event related to gardening might be interpreted as an indication of their interest in joining a flower or garden group and becoming involved in the group's activities.

Table 57. Three sample comparisons on interest in special garden-related classes, workshops, lectures

Interest in Attending	Sample Percentages Random	Phonein	Hortsty
No Interest	33.2	16.2	4.1
Some Interest	43.7	50.0	36.7
Very Interested	23.1	33.8	59.2
	100.0	100.0	100.0
(X^2=38.2, df=4, p<.001)	(316)	(74)	(49)

Actual, Usual, and Preferred Sources. A comparison of the three groups on actual sources of information ("Have you sought gardening information during the past few weeks?") was not a meaningful one since the phone-in sample was selected because they had actually sought information during that period. However, it was possible to compare the society members and gardeners in the random sample. As expected, the two groups do differ (X^2=6.42, df=1, p<.02). Over half of the society members had sought information compared to about one-third of the respondents in the random sample. Also, society members were less likely to have consulted interpersonal sources (X^2=6.62, df=1, p<.02); and more likely to have consulted "other" sources which include personal references, their own knowledge, discussion clubs, and the like (X^2=8.37, df=1, p<.01). The two groups do not differ on whether they had consulted expert sources or the mass media.

Results from the question concerning usual sources of gardening information show the three groups differ on all four of the categories of information source types (Table 58). The phone-in and society samples are alike, and both are different from the random group in that they are less likely to consult interpersonal and more likely to consult expert sources

of information on home gardening. However, the random and phone-in samples are alike, and both differ from the society-member sample in that they are less likely to consult the mass media and "other" sources for such information.

Table 58. Chi-square values and percentage comparisons of the three samples by usual information source

Information Source	Sample Percentages Random	Phonein	Hortsty	X^2[a]	p[b]
Interpersonal	42.7	13.5	26.5	24.3	.001
Expert	40.5	75.7	67.3	36.7	.001
Mass Media	8.5	2.7	26.5	20.7	.001
Other Sources	23.7	16.2	57.1	29.1	.001

[a]All chi-square values are with 2 degrees of freedom since variables listed had yes-no responses.

[b]Probability of error in rejecting null hypothesis of no difference between the three samples.

In terms of preferred sources or source types which the respondent would have most confidence in, most of the respondents in all three samples prefer expert sources of information (Table 59). However, respondents in the random sample are more likely than those in the other two groups to prefer interpersonal sources while the phone-ins and society members are more likely than gardeners in general to prefer expert sources of gardening information.

Table 59. Three sample comparisons on preferred information source

Preferred Source	Sample Percentages Random	Phonein	Hortsty
Interpersonal	19.6	1.4	4.1
Expert Sources	58.5	90.5	77.6
Mass Media	9.8	4.1	6.1
Other Sources	12.0	4.1	12.2
	100.0	100.0	100.0
(X^2=34.6, df=6, p<.001)	(316)	(74)	(49)

F. Summary and Discussion

The myriad of findings reported in this chapter can be summarized around four points.

First, the three groups differ on virtually all of the key variables included in the study. The only major exception is the age variable, and differences here were nearly statistically significant.

Second, with but one exception, the random sample is consistently different from the sample of horticultural society members, and the difference between the three groups is always greatest between these two samples. The one exception is marital status where the random and society samples are equally likely to be married and both less so than respondents in the phone-in sample.

Third, the pattern of differences between the three groups varies mainly in terms of the relationship of the phone-ins to the other two samples. That is, the three groups differ almost exclusively in terms of how similar to or different from the other two groups the phone-in sample is.

Finally (and this is related to the previous point), the three ways in which the three samples differ are: a) the phone-ins are similar to the random sample, and both are different from the horticultural society sample; or b) the phone-ins are different from both of the other samples and are somewhere between the two; or c) the phone-ins are similar to the society members, and both groups are different from the random sample.

With these patterns of relationships in mind, it is useful to compare the three groups in terms of the major categories of independent and dependent variables, paying particular attention to the ways in which the phone-ins are similar to or different from the other two groups.

Demographic Characteristics. Except for age and marital status noted earlier, for every one of the demographic variables on which the groups differ, respondents in the phone-in sample are similar to the sample of society members. They are more likely than gardeners in general to be women and own their own single family homes. But most important, these two groups are alike and considerably higher than the random sample in terms of education, household income, chief wage earner's occupation, and the index of socio-economic status.

Gardening Variables. Here the phone-in sample is similar to the random sample in that respondents in both groups have spent fewer years on home gardening and devote less time per week than do members of the horticultural society. However, phone-ins are like society members in level of knowledge of and interest in gardening, and the averages for both groups are higher than those for the random group. However in terms of the Home Gardening Involvement Index, the phone-ins are somewhere between the other two, differing from both.

These findings are consistent with those reported in the previous chapter concerning the interrelationship of knowledge, interest, activity, and years involved in home gardening. The findings were that, while knowledge and interest increase in more of a straight line or linear relationship, both increase rapidly with activity and year, level off as the two increase further, and then tail off slightly as years and activity continue to increase. Here we find the phone-ins to be high on knowledge and interest, equal to that of the society members. They are not as active, though, nor have they devoted as many years to this leisure activity. They are more involved in a more complete sense than the general sample of home gardeners, but not as much as the society members.

In short, these findings suggest some sort of a process related to gardening involvement. The phone-ins, similar to members of the horticultural society in terms of socio-economic status and gardening knowledge and interest, have not participated in home gardening as long nor are they as active. They are, however, more involved in this area of leisure activity than gardeners in general, suggesting that they may be in the process of becoming more high-active, high-involved gardeners, increasingly similar to those who belong to gardening groups.

Group Membership, Opinion Leadership. Here, too, this process is suggested. The phone-ins, like the general sample of gardeners, do not belong to gardening groups, nor do they belong to many other kinds of groups. Society members, on the other hand, are high-active group members in every sense.

Phone-ins, though, are somewhere between the other two groups and different from both in terms of perceived and actual opinion leadership. In other words, they are more likely than home gardeners in general to perceive themselves as sources of information and advice for others and to actually have been asked for information, but they are less likely than society members on both dimensions of leadership behavior.

Media Use. Phone-ins are more active users of the media than home gardeners generally in all respects but one: they are about as frequent viewers of the "Yard and Garden" television program, and both watch it less so than the sample of society members. However, they are somewhere between the two other groups in their exposure to the recreation sections and gardening columns of the two Sunday papers, in the number of gardening magazines read regularly, and in how likely they would be to read topic-related articles in newspapers and magazines. They are like the society members in time spent watching television generally, in their expressed likelihood of listening to a gardening radio program, in watching a gardening television program, and on the Media Likelihood Index which is an indication of their overall likelihood to exposing themselves to gardening-related media and media content. In short, it is possible to conclude that they may be in the process of becoming heavier users of the gardening media and in becoming more like gardening group members.

Information Seeking. Phone-ins are more likely than gardeners in general and less likely than society members to own their own gardening references but are as likely as society members to save reference materials they come across. They are like the random group in that neither attends special gardening classes or workshops. However, they are more interested than that group (but less than the society members) in attending such events or activities. Also, they are different from the society group and like the random sample in that they usually do not consult the mass media or "other sources" for gardening information; but they are like the members of the horticultural society in that they usually consult and prefer to consult expert sources like the university and garden stores.

Finally, the only variable on which the pattern of relationship between the three samples was not consistent was the question about whether the respondent generally discusses gardening with other people he knows. This is the only instance in which the phone-ins were less likely than both the random and society samples and were most different from the horticultural society group. Less than half said they usually discuss gardening with people they know. This is compared to over two-thirds of the random and three-fourths of the society samples.

This finding, coupled with other information about the phone-in group, offers some insight into this type of home gardener. First, they are high-knowledge, high-interest, and high-active gardeners who generally seek information they need from more impersonal, expert sources. They are likely to be asked for information and advice and perceive themselves as sources of such information for others. They do not, however, usually ask their friends or neighbors for advice, and, in fact, are least likely of the three gardening types to discuss gardening with those people. In short, it would appear that they are serious gardeners who do not have the informal relationships with other gardeners as knowledgeable and active as they and who share their interest in this leisure time activity.

Finally, there was no question that dealt directly with interest in joining a gardening group. However, phone-ins indicated that while they do not attend topic-related workshops and the like, they did express interest in doing so. And since these kinds of educational activities are usually sponsored by flower or gardening groups specifically for their members, it may be that this expressed interest can be interpreted as an indication of interest in joining such a group.

CHAPTER V. CONTACT WITH EXTENSION

The earlier discussion of information seeking behavior dealt with four broad categories of information sources: interpersonal; expert; mass media; and other sources. County agents and university Extension specialists were included in the "expert" category of possible sources of home gardening information. This chapter deals specifically with the extent to which Twin Cities gardeners contact state and county Extension for information and assistance as well as their use of Extension publications.

A. Extension as an Information Source

In terms of preferred, usual, and actual sources of gardening information, results from the random sample of Twin Cities home gardeners show that 40 percent of the respondents would have most confidence in information from university specialists, 18 percent usually consult this source, and about 8 percent had actually sought information from specialists during the 2 weeks preceding the interview. These findings would seem to indicate a favorable image of university Extension as a source of gardening information. Such is not the case, however, for the urban area county Extension offices.

Less than 2 percent of the respondents in the random sample mentioned county agents as the source they would prefer or have most confidence in, and nearly 4 percent specifically mentioned agents as the least reliable source of gardening information. Less than 1 percent said they usually consult their county agent when they have a gardening question or problem, and only about 1 percent had actually contacted him during the 2 weeks before the interview took place.

Several questions dealt directly with how frequently individuals in the Twin Cities contact state and county Extension for home gardening information. Results in Table 60 show that less than 15 percent of the respondents had ever contacted their county office for gardening information. And most of those do so only about once a year. Again, only about 1 percent said they had contacted the county agent during the preceding month. Using the Involvement Index to compare different types of home gardeners in terms of their extent of involvement in gardening, no differences were found in terms of how frequently they consult their county Extension office.

Table 60. Frequency of contact with county and state Extension for horticultural information (n=316)

Frequency of Contact	Extension Source	
	County	State
Never	86.7%	66.1%
Once a year	10.8	28.2
Several times a year	2.5	5.7
	100.0	100.0

The same table also shows, however, that about one-third of the home gardeners in the metropolitan area have contacted university Extension at one time or another for gardening information. Most of them call about once a year. But here level of involvement in home gardening is a factor. According to Table 61, about one-fourth of the low-involved gardeners have contacted university specialists for information. This is compared to over half of the respondents who are considered to be highly involved in home gardening. This is consistent with findings reported earlier which indicate that the more involved one is in home gardening, the more active and discriminating seeker of information he will be.

Table 61. Frequency of contact with state Extension by level of involvement (percent)

Frequency of Contact	Level of Involvement		
	Low	Middle	High
Never	76.0	69.4	47.4
Once a year	21.2	26.9	39.7
Several times a year	2.9	3.7	12.8
	100.0	100.0	100.0
(X^2=20.77, df=4, p<.001)	(104)	(134)	(78)

B. Extension Publications

About half of all the respondents in the random sample said they have seen Extension publications on home gardening, and over one-third of the sample have read such publications. Results reported in Table 62 show that the more involved gardeners are more likely to have seen and read Extension gardening bulletins. Level of involvement is also related to whether or not they had requested any bulletins from Extension during the month before the interview (X^2=8.61, df=2, p<.02). About 3 percent of the respondents said they had requested such gardening publications during that time.

Table 62. Whether respondent has seen or read Extension publications on home gardening by level of involvement (percent)

Seen, Read Publications	Level of Involvement		
	Low	Middle	High
Never	66.3	56.0	35.9
Seen some	10.6	9.7	14.1
Seen, read some	23.1	34.3	50.0
	100.0	100.0	100.0
(X^2=17.96, df=4, p<.01)	(104)	(134)	(78)

C. The Three Samples Compared

Horticultural society members and respondents in the phone-in sample are more likely than home gardeners in general to mention university specialists as the source they would have most confidence in for gardening information. Also, respondents in these two specialized groups are more likely to usually

contact this source when they have a gardening question or problem. The question in the preceding section about sources actually contacted during the preceding 2 weeks did not apply to the phone-in sample since individuals in that group were selected because they had contacted the university's Horticultural Information Center. As expected, though, society members were more likely than respondents in the general sample to have contacted the university during that 2 -week period.

In response to the more specific question about how frequently county Extension is contacted for information, the three groups do not differ (X^2=7.07, df=4, $p < .20$). Well over three-fourths of all three groups never contact county Extension. The question of frequency of contact with university specialists was omitted from the interview with individuals who had phoned for information. But society members are more likely than the average Twin Cities home gardener to contact university Extension and to do so more frequently (X^2=38.16, df=2, $p < .001$). About three-fourths of the society members call the university (most of them once a year), compared to less than one-third of the random sample respondents. Society members are also more likely to have seen and read Extension publications on home gardening (X^2=35.92, df=2, $p < .001$).

D. Summary

Findings from this part of the study which dealt directly with state and county Extension sources of information support the earlier conclusion that the more involved home gardeners, society members, and persons who phone for information are more active and discriminating seekers of horticultural information. The more one is involved in home gardening, the more likely he is to contact university specialists for information and to do so more often than the less-involved gardeners. This is particularly important when considered along with findings reported earlier showing that the more involved gardeners are more likely to serve as sources of information and advice for others, particularly friends and neighbors involved in home gardening. Quite likely, information provided by university specialists to people who contact them does not stop at that point, but is passed on to others in the neighborhood.

Finally, findings reported here indicate a positive image of university Extension as a source of horticultural information. It seems, however, that the urban county agent has yet to establish himself as an available, reliable source of information about home gardening.

CHAPTER VI. THE TELEPHONE AND MAIL SURVEYS

Two smaller surveys were also conducted as part of the Minnesota project. One was a telephone survey of individuals who had phoned either of four University of Minnesota departments or five metropolitan county Extension offices for home gardening and related information. The other was a mail questionnaire survey of individuals who had requested copies of a revised Minnesota Extension bulletin on home lawn care.

A. The Telephone Survey

1. Methodology

This survey consisted of brief telephone interviews with a sample of individuals who phoned either of four university departments or five metropolitan-area county Extension offices the 2nd week of June and the 2nd week of August 1971. Departments participating in this part of the study were horticulture, entomology, plant pathology, and forestry. During the 2 sampling weeks designated, the name and telephone number of every fifth caller to these departments were recorded. These individuals were interviewed by phone within several days after their call to the university.

A similar procedure was used for selecting a sample of callers to Extension offices in Anoka, Dakota, Hennepin, Ramsey, and Washington Counties. The sampling rate for the county offices differed from that used to sample callers to the university departments. Because of the relatively fewer calls to county Extension offices, county agents were asked to record the name and telephone number of every third rather than every fifth caller during the sampling weeks designated.

The same telephone interview questionnaire was used for all respondents and dealt mainly with the situation surrounding the respondent's call to either the university or county Extension office. In total, 99 interviews were conducted with respondents who had phoned their county office, and 369 were conducted with individuals selected from among callers to the four university departments.

2. The Callers

Compared to the average Twin Cities home gardener, individuals who phone either state or county Extension are younger, better educated, and live in households where the chief wage earner is more likely to be in the professional-technical or manager-official occupational category. They are most likely to be women (74 percent), to own their own home (94 percent), and to live in the suburbs (61 percent).

Callers to the university do not differ from individuals who call the county office in terms of education, chief wage earner's occupation, sex, or home ownership. University callers, though, are younger. Their average age of 42 years is similar to the average age of individuals in the indepth interview survey who had called the horticulture department. The average age of persons calling the county offices is 47 years which is more in line with the average age of members of the Minnesota Horticultural Society.

Another major difference between university and county Extension callers is in terms of where they live. While most of the calls come from the suburbs, more of

the university than county Extension callers live in the suburbs and central cities. More of the county rather than university callers live in small towns or in the country.

Table 63. Location of callers to university departments and county offices

	University	Counties
Farm	1.0%	4.0%
Country, Not Farm	5.8	14.1
Small City	1.4	15.2
Suburb	63.9	53.5
Central City	27.9	13.1
Total Percent	100.0	100.0
Number	(294)	(99)

The horticulture department received about 46 percent of the university calls, compared to 30 percent for entomology, 21 percent for plant pathology, and a little over 2 percent for forestry. The counties of Hennepin, Ramsey, and Washington each received about one-fourth of the calls to the metropolitan county offices. Anoka County handled 16 percent, and Dakota County 10 percent.

3. Frequency of Calls to Extension

One of the concerns of some of Extension specialists handling calls from home gardeners is that many of the calls come from essentially the same individuals. In other words, Extension specialists are concerned that they may be serving as the personal home gardening consulting service for a regular group of repeat callers. However, among the more interesting findings from the telephone interviews is that about half the callers to both the university and county offices have never called before; and about half of those who have called previously call only about once a year. No doubt there are those who call Extension whenever they have a problem or a question. But the findings here indicate that Extension specialists and county agents are actually dealing with a large number of different and infrequent callers.

Neighborhood channels of communication appear to be used to inform individuals that they can obtain home gardening information from university specialists or county agents. About 30 percent of all callers found out that Extension could be contacted for such information from their friends and neighbors. This is more the case for university callers than for those calling county offices. University callers are also more likely to have found out about Extension through telephone listings and less likely than county callers to have learned of this service from newspapers or magazines. There also appears to be specialist-to-agent and agent-to-specialist referrals. While about 13 percent of callers to the university found out about university Extension from other county agents, close to one-fourth of the county callers found out they could call their county agent from a university specialist or staff member.

4. The Calling Experience

For purposes of this study, calls were identified as either problem or prevention calls. The problem calls are those in which the individual is seeking some specific information to help solve an immediate problem. Prevention-type calls, on the other hand, are those in which the individual is seeking information to prevent a problem situation from occurring.

As most Extension specialists would expect, the majority of calls are of an immediate, problem solving nature--although this differs somewhat for county and university calls. While about three-fourths of the calls to university specialists were problem-type calls, close to 90 percent of the calls to county offices were problem calls.

Most of the callers had not checked anywhere else before calling the university or their county agent. Only about 30 percent had consulted another source before calling. About half of these individuals had checked first with a garden store or commercial outlet, 15 percent had asked a friend or neighbor, and another 15 percent had checked his gardening references before calling. The only major difference between county and university calls in this regard is that about 8 percent of the callers to county offices had checked first with a university specialist. Almost none of the university callers had checked first with a county agent.

Similarly, most callers (90 percent) had not checked anywhere else after their call, nor did they intend to check further. Of those who had or planned to consult another source, about half consulted a garden store or commercial outlet. In other words, there is a certain amount of Extension-to-garden store--garden store-to-Extension cross-checking on the part of some information seekers.

There does not appear to be any major problem in being able to get the right number to call, nor is there any real difficulty in getting through because of the line being busy. Only about 18 percent of all callers said they had trouble getting the right number to call, and this was more a problem for callers to the university than for those calling county offices. Only about one-fourth of the callers said they had trouble because of the lines being busy. Again, this was more the case for university callers than the others.

The individuals calling either the university or county offices are satisfied with the information and service they receive from the individuals they talk to. Only about 3 percent of all callers said the person they contacted was "not at all" or "not very" helpful. About 10 percent said he was "somewhat" helpful, and 87 percent felt he was "very helpful." Also, virtually all of the callers said they will again call either the university or county agent for home gardening and related information.

5. General Information Seeking Behavior

The telephone interviews included the same series of questions on general sources of information used in the indepth interviews. The findings are consistent with results reported earlier. Telephone callers are more frequent and discriminating seekers of home gardening information than are home gardeners in general. About 40 percent of the callers interviewed said they usually consult stores or businesses for

information, 27 percent call university specialists, and 15 percent consult their personal reference books. Only about 12 percent ask their friends and neighbors, compared to about 30 percent for the random sample.

Most of the callers (65 percent) said they discuss home gardening with other people, mostly friends and neighbors. Over one-third had been asked for information during the 2 weeks preceding the interview. Again, they were asked mostly by friends and neighbors. The callers also see themselves as active sources of information. Over half the respondents claim that from one-to-three individuals look to them for information and advice, and one-fourth said that four or more people consult them regularly for home gardening information.

6. Summary

Most of the findings from the indepth interviews comparing callers to home gardeners in general are supported by results from the telephone survey of callers to the university and county offices. In general, individuals who initiate this contact with Extension are younger, better educated, and live in households where the chief wage earner is in a higher occupational category. They are most likely to be women, to own their own homes, and to live in the suburbs. About half of the callers interviewed had never contacted Extension before. Of the half who did, about half call only once a year. Most found out that they could call Extension from their friends and neighbors, although there appears to be some agent-to-specialist and specialist-to-agent referrals. Most calls are problem-type calls, especially those to the county offices. Most callers did not check anywhere else either before or after they called Extension. Of those who did, however, about half had contacted a commercial outlet before or after their call to Extension. There are no major problems in getting through to the appropriate staff member, and the information and assistance callers received was rated very high. Most said they will call again if they need information of this sort. As was concluded earlier, individuals who contact state or county Extension appear to be more active and selective seekers of information; they are active discussants on home gardening topics in their neighborhoods; and they view themselves as active sources of information, especially for their friends and neighbors. This says, simply, that the people Extension has contact with through telephone calls are active participants in the dissemination of home gardening information.

B. The Lawn Bulletin Survey

1. Methodology

Extension Bulletin 366, The Home Lawn, was revised and made available in late March 1971. The bulletin was publicized in Twin Cities and outstate media. A return questionnaire was included with the first 900 copies requested from the bulletin room and with the first 250 copies sent out from the horticulture department. In addition, the questionnaire was included in 50 copies of the bulletin sent to each of the five metropolitan county Extension offices for distribution.

The cutoff date for receiving completed questionnaires was the last day of May. At that point, the five county offices together had sent out 190 of the 250 copies provided. The overall response rate was 31 percent. About 17 percent of the questionnaires sent out by the county offices were returned. This is compared to 30 percent for the horticulture department and 35 percent for the bulletin room The questionnaire contained questions on how the individual found out the bulletin was available, what he thought of it, how useful it was to him, whether he had ever contacted Extension before, where he lived, and his education and occupation.

2. Findings

Somewhat over half the requests for the bulletin were from the suburbs, and about one-fourth were from the central cities. Individuals who wrote or called for the bulletin are better educated than respondents in any of the other samples, including the horticultural society sample. About 45 percent of the requests for the lawn bulletin came from individuals with college degrees. This compares to 40 percent for the horticultural society, 30 percent for the phone-ins, and 15 percent for the random sample of home gardeners.

As was the case with callers to the university and urban county offices, most requests came from individuals who had never contacted Extension before. Close to three-fourths of those requesting the lawn bulletin had never requested any Extension publications before, and over two-thirds of them had never called or written Extension before.

The lawn bulletin was publicized in the Twin Cities and outstate media, including a brief story in the recreation sections of the two Sunday papers. Sixty percent of those who requested the lawn bulletin found out about it through the newspaper, 15 percent by calling the university for lawn information, and about 12 percent from garden stores or other commercial outlets. Others found out about it from a variety of sources, but what is interesting is that less than 1 percent learned of the bulletin's availability from friends and neighbors.

About two-thirds of the respondents in this survey had read all of the publication by the time they returned the completed questionnaire. None of the respondents found the bulletin difficult to understand. Over 80 percent said it was "very easy;" the rest said it was "rather easy" to understand. Most said it contained what they wanted to know about lawn care. Three-fourths said the bulletin will be very useful to them; the rest said it would be of some use. Ninety percent said they would file the lawn bulletin for future reference. The rest said they would share it with someone else and then file it or that they would give it to someone else to use.

CHAPTER VII. SUMMARY AND CONCLUSIONS

The Minnesota Task Force for Phase II of the Minnesota-Wisconsin Home Horticultural Project was given the responsibility to: 1) review the findings from the surveys reported in the preceding chapters as well as information gathered by Wisconsin Extension and ES-USDA; 2) draw conclusions from that information; and 3) recommend pilot projects that might be undertaken in Phase II. To aid in this regard, an attempt is made in this chapter to summarize some of the findings from the various surveys in the present study and to offer some tentative conclusions to be considered by the Minnesota Task Force.

1. Extent of Urban Home Gardening

SUMMARY: Nearly all households in the Twin Cities metropolitan area have some kind of plant life. Of the nearly 94 percent that do, most have either flowers and a yard, or flowers, a yard,and vegetables. This is especially true of those individuals who phone the university for information. Seventy percent of the callers to the horticultural department are involved in all types of home gardening activity.

CONCLUSION: The urban home gardening clientele consists of individuals from nearly all households in the Twin Cities area. Extension's combined educational efforts should be designed to serve all urban gardeners and should deal with all aspects of home horticulture.

2. Neighborhood Communications

SUMMARY: Findings from the present study consistently point to the importance of intraneighborhood communication about home gardening topics and issues. Over two-thirds of the gardeners in the random sample said they discuss home gardening with others, mainly their friends and neighbors. Friends, neighbors, family, and relatives were the actual sources of information for over two-thirds of the respondents who had sought information during the 2 weeks before the interviews. They are the usual source of information for over one-third of the home gardeners and the preferred source for nearly 20 percent. Individuals who had been asked for home gardening information were most likely asked by a friend or neighbor. In addition, when callers to the university departments and county offices were asked where they found out they could call Extension for gardening information, more of them mentioned friends and neighbors than any other source.

New information is introduced into the neighborhood primarily by the more active home gardeners. Analysis of the correlates of gardening activity revealed that as activity increases, so does knowledge of and interest in home horticulture and use of the media for topic-related information. The more active home gardeners were also found to be more likely to own and use more frequently their own reference books and materials, to be more active and discriminating seekers of information, to be more likely to serve as sources of home gardening information for others (mainly friends and neighbors), to attend special classes, workshops, etc., and to belong to home gardening groups.

CONCLUSION: Neighborhood dynamics are important in the flow of horticultural information. Extension's link to these neighborhood channels of communication is primarily through the high-knowledge, high-interest home gardeners who are more likely than others to contact Extension and other expert sources; to participate in educational programs through the media, classes,or organized groups; and to pass this information along to others in the neighborhood.

3. Callers to Extension

SUMMARY: Compared to home gardeners generally, individuals who contact Extension for information are younger, better educated, and represent higher income, higher occupation households. Most of them are married women living in single family homes which they own. They are well integrated into their neighborhoods and active in a broad range of home gardening activities. They are more knowledgeable of and interested in topics related to home horticulture, more active users of the media for such information, and more likely to own and use their own reference books and materials. They are also more active and discriminating information seekers and more likely to serve as sources of information for others in their neighborhoods.

About half have never contacted Extension before. Of those who have, about half call or write for information once a year or less. This was also the case for those who requested the revised lawn bulletin. Close to three-fourths had never requested Extension publications before, and over two-thirds had never called or written Extension for information.

People who contact Extension are similar to horticultural society members in most respects, but differ in that they are younger, slightly lower in income, and more likely to be married and live in the suburbs. The main difference between phone-ins and society members, though, is that most phone-ins do not belong to any organized flower or gardening groups and most have never attended any special classes or workshops on home gardening. Over 80 percent of the callers, however, expressed an interest in attending such educational programs.

CONCLUSION: Individuals who initiate contact with Extension should not be taken for granted. They serve as an important link between Extension and the broader group of urban home gardeners. While these individuals open the channels of communication to Extension, it is Extension's responsibility to follow up on this opportunity to disseminate information to the urban clientele. The Phase II Task Force should consider ways to secure names and addresses of callers and of providing followup communication either by state staff or county offices. Callers should be informed of the availability of new informational materials, special media programs on home gardening, and upcoming educational programs in their areas.

4. Use of Informational Materials

SUMMARY: Most high-active home gardeners, phone-ins, and society members maintain some kind of personal reference file of horticultural information. They seek such informational material, save it, and use it frequently. Almost all of those requesting the revised lawn bulletin said they planned to file it for future use.

CONCLUSION: Extension should continue to publish fact sheets, bulletins, and other clear, concise reference materials for home gardeners. This material is wanted, needed, and used, especially by the more active home gardeners, phone-ins, and society members. Also, since most home gardeners, particularly the more active ones, tend to be involved in a wide range of gardening activities, consideration might be given to preparing a special packet of coordinated reference materials covering the broad range of home gardening topics. Consideration might also be given to charging for such a packet of informational materials.

5. Charging for Some Services

SUMMARY: As was explained earlier, individuals who contact Extension are younger, better educated, and from higher income, higher occupation households. This was true of the phone-ins as well as of the individuals who requested the lawn bulletin.

CONCLUSION: Some consideration should be given to the feasibility and desirability of charging a nominal fee for some materials, especially the more elaborate, costly publications and reference materials. Consideration should also be given to ways of selling certain materials to commercial gardening outlets. They could either sell or distribute them free to their customers. This was tried on a limited basis this past summer at Michigan with some success.

6. Serving ALL Home Gardeners

SUMMARY: Individuals who initiate contact with Extension generally represent the higher socio-economic levels, and most of them live in the suburban areas.

CONCLUSION: If Extension conducts its educational programs in home gardening mainly in response to requests for information from those who call or write in, it will be serving essentially a socio-economic elite. If Extension is to serve all urban home gardeners, a special effort will have to be made to reach individuals in the central cities, especially the low income, elderly, and disadvantaged. Since these individuals are less likely to contact Extension on their own, they are likely to be missed through programs designed primarily in response to information requests.

7. Women Gardeners

SUMMARY: Most home gardeners are married women. This is true nationally as well as in the Twin Cities. Women were found to be the ones primarily responsible for caring for the plant life in about 60 percent of the households. Also, 78 percent of the society members are women as are 82 percent of the callers to the horticultural department and 74 percent of the callers to the four university departments and five county offices.

CONCLUSION: Extension should consider ways of working through organized women's groups to disseminate home gardening information, publicize media and other educational programs, and conduct special gardening classes or workshops. Also, there may be ways to take advantage of the home agents' contact with homemakers and other women's groups in the metropolitan area.

8. Extension Radio and Television

SUMMARY: About 5 percent of the urban home gardeners ever listen to Extension's daily radio program "The Farm Hour" (now "Scope, The Extension Hour"). Most of those who listen do so less than once a week. The audience is small, particularly when compared to the potential audience for a radio program that would provide home gardening information. Over three-fourths of the high-actives said they would probably or very likely listen to such a radio program. Of the potential listeners, most prefer a weekday program broadcast either mornings or evenings. Few preferred a noon broadcast.

The same is true for "Yard and Garden," Extension's weekly gardening program broadcast during the gardening season. Just over 10 percent of the respondents in the random sample said they ever watch the program, and most watch it less than once a month. Over three-fourths of the high-active home gardeners and about half of the low-actives said they would watch such a program if they were aware it was being broadcast. Most prefer a weekday evening program.

CONCLUSION: The audiences for Extension's radio program and its special gardening television program are small when considered in relation to the potential audiences for such programs. Part of the content of "Scope" should deal with home gardening information, and both "Scope" and "Yard and Garden" should be identified as sources for such information. Both should be publicized more completely, and the Task Force should give consideration to the possibility of paid advertisements in select media as one means of more effectively publicizing both programs.

9. Weekly Newspapers

SUMMARY: Weekly newspaper readership is very low in the central cities, but high in the suburbs. This is mainly because of the availability of such newspapers through several well-organized suburban weekly newspaper chains.

CONCLUSION: Suburban weeklies represent a useful channel for communicating home gardening information and for publicizing Extension-sponsored radio and television programs and educational classes and workshops. Weekly newspaper columns and other feature material should be provided to these newspapers from the county offices, and state specialists should develop ways to provide useful current information on home gardening to agents for their use in this regard.

10. Sunday Newspaper Sections

SUMMARY: The home and recreation sections of both Sunday papers have very good readership, especially among the high-active home gardeners, phone-ins,and society members. The garden columns in both sections of the two papers also have large audiences.

CONCLUSION: Information should be provided to the editors of the two home and recreation sections on a regular basis during the gardening season. If paid advertising is considered as a means to promote Extension's media programs and educational offerings in home gardening, advertisements should be placed in the two sections on the pages with the gardening columns.

11. Commercial Outlets

SUMMARY: Garden stores and other commercial outlets for home gardening products serve as primary sources of information for many urban gardeners. Close to 20 percent of the home gardeners mentioned such stores as the most reliable sources of gardening information. About one-fourth said they usually get information from such establishments, and over 30 percent of those who had actually sought information during the 2 weeks preceding the interview had consulted garden stores.

CONCLUSION: Extension must recognize that garden stores play a major role in the communication of home gardening information. It should continue and expand present programs aimed at helping commercial dealers improve their informational and consultation services for urban gardeners. This can be done by continually providing such stores with up-to-date information and by conducting training sessions for employees, to mention but a few possibilities for working through garden stores to serve the urban clientele. Consideration should be given to setting up special Extension home gardening information centers in a few stores on an experimental basis. Such a center could contain publications, fact sheets, and other educational materials. As was suggested earlier, consideration should be given to selling publications to garden stores for them to sell or give to customers.

12. University Extension as a Source

SUMMARY: The image of the university or state Extension as a source of home gardening information is good. About 40 percent of all gardeners said they would have most confidence in university specialists for such information, 18 percent said they usually contact them for information, and about 8 percent of those who sought information during the 2 weeks preceding the interview had contacted the university. These percentages are higher for the high-actives, phone-ins, and society members. Of those who called, most felt they got very good information and assistance from the person they talked to.

CONCLUSION: University Extension is already heavily involved in serving urban home gardeners, and its image as a source of information is good. If any effort was made to actively publicize the university as a source of information, the demand would easily exceed the supply. The questions to be considered are the extent to which state staff and university departments should be involved in providing individual consultation to urban home gardeners, what proportion of Extension's effort in this regard should come from university specialists, and what proportion from the metro area county offices. In other words, should Extension expand such consultation service, and if so, should the increases be in university departments or on the county level?

13. County Extension as a Source

SUMMARY: The image and use of county Extension as a source of home gardening is not particularly good. Less than 2 percent of the respondents said they would have most confidence in the county agent for home gardening information, and nearly 4 percent specifically mentioned agents as the least reliable source. About 1 percent said they generally consult county Extension for information, and about 1 percent of those who had sought information during the 2 weeks before the interview had called their county agent.

CONCLUSION: If county offices are to assume more of the burden of Extension's home gardening efforts, they will have to be better staffed, provided necessary materials, equipment, and resources and be better identified and publicized as sources of such information.

A. The Next Step

The basic questions facing Extension at the present time are how much it should and will be involved in helping meet the informational needs of an ever-growing number of urban home gardeners and how it should organize itself to do so. Several questions presented early in this report are repeated here as questions to be considered by the Phase II Task Force. They are:

* To what extent should Extension serve as a personal consultation service for urban area home gardeners?

* How much of Extension's effort in this area should be on an individual problem solving basis, and how much should be devoted to broader informational and educational home gardening programs?

* What role will urban county Extension offices play?

* What will be the relationship of state Extension specialists to these county offices?

* How and to what extent will the problem of providing information and assistance to urban home gardeners be dealt with on a metropolitan area wide basis?

* What will be the nature and extent of the relationship of state and county Extension to the Twin Cities home gardening industry?

Bibliography

Barcus, Francis E. (1962). The Role of Agricultural Extension in the Suburban Community, Report 6, Communication Research Center. Boston, Mass.: Boston University.

Carlson, R. E., R. V. Dawis, G. W. England, and L. H. Lofquist (1963). Minnesota Studies in Vocational Rehabilitation, XIV, The Measurement of Employment Satisfactoriness. Industrial Relations Center, University of Minnesota.

Carter, Roy E., Jr., and Peter Clarke (1962). "Public Affairs Opinion Leadership Among Educational Television Viewers," American Sociological Review, 27: 792-799.

Dumazedier, Joffre (1967). Toward a Society of Leisure. New York: The Free Press.

Katz, Elihu, and Paul F. Lazarsfeld (1955). Personal Influence: The Part Played by People in the Flow of Mass Communication. New York: The Free Press.

Troldahl, Verling C. (1963). The Communication of Horticultural Information and Influence in a Suburban Community. Amherst, Mass.: Communications Research Center, University of Massachusetts. Report No. 10.

Troldahl, Verling C. (1966). "A Field Test of a Modified Two-Step Flow of Communication Model," Public Opinion Quarterly, 30: 609-623.

U. S. Bureau of the Census (1970). 1970 Census of Housing and Population, First Count Summary Tape. Output available through the Minnesota Analysis and Planning Systems (MAPS) office, University of Minnesota, St. Paul.

U. S. Bureau of the Census (1970b). 1970 Census of Housing and Population, Fourth Count Summary Tape. Output available through the Minnesota Analysis and Planning Systems (MAPS) office, University of Minnesota, St. Paul.

PART II

THE WISCONSIN REPORT

By Harry P. Zimmerman

INTRODUCTION

"I don't think there has ever been a year when there have been as many calls and samples brought into my office for identification of plant diseases, insects, physiological, and oddball conditions like I have seen this year." This quotation from a letter written by a county agent in Wisconsin points up the urgent need for a close look at urban horticulture. In 1971, the Milwaukee county office answered 12,950 telephone or meeting questions about horticultural subjects, in addition to 395 visitors to the office.

In Wisconsin, the Cooperative Extension Service has been responsive to the needs of home horticulturists for many years. However, the number of requests made to county extension offices for home horticulture information is rapidly increasing, especially in counties where population is predominantly urban. An integrated, efficient home urban horticulture program is necessary to serve citizens in their pursuit of horticulture activities. Because of the Wisconsin tradition, this programming task has to be attacked on a broad base involving appropriate faculty in the University of Wisconsin system.

The initial task was conceived as gathering relevant information, assembling that information, and describing it in a way so it could be used to develop educational programs. The project had the following specific objectives:

1. Gather information about the clientele including needed content, where information was obtained, ways information was received, and some background information.

2. Identify human resources among county agents and commercial and municipal units.

3. Determine kinds of support needed by the identified resources to make them more effective.

The dissemination of needed horticulture information to urban residents in Wisconsin should evolve around a broad instructional program and not just isolated information disseminating techniques. Such a process would take full advantage of all resources including physical resources such as buildings, parks, and persons.

Hopefully, the information gathered through survey techniques would enable program planning based on theories of adult instruction. Specifically, this would establish a heterogeneity of the population, structure of the population, and maturity of the population. It would also establish the resources available for both instruction and performance. It would establish the obstacles to utilization of resources. In addition, it would establish the availability of human resources and, of utmost importance, relevant content.

A survey methodology was used to provide information about the clientele and to assess human resources to meet their needs. For the urban clientele survey, a probability sample was drawn through telephone exchanges from Milwaukee County--a large urban area; Oshkosh, Wisconsin--a medium-sized urban city; and Lancaster--a rural township. A sample of 428 was used in Milwaukee County; 225 interviews were taken in Oshkosh, and 199 in Lancaster. Data were gathered by trained telephone interviewers. Each interview took about 20 minutes. The interviewees were narrowed down by determining if trees, shrubs, vegetables, or flowers were growing around their houses and who in the households were responsible for the outside plants.

Information about human resources was obtained by mail questionnaires. Three hundred Wisconsin county agents were surveyed, while nonExtension resources were assessed in Milwaukee County, Oshkosh, and Lancaster.

Two basic instruments were prepared for the study--one for the clientele survey, and one for identifying resources.

The clientele survey was developed by a team consisting of content specialists, program development specialists, and research survey specialists.

The basic instruments were reviewed by the combined committee from the University of Minnesota and the University of Wisconsin. They were reworked, pretested by the Wisconsin Survey Research Laboratory, and reworked again. Professional interviewers from the Wisconsin Survey Research Laboratory conducted the surveys after a proper orientation to the survey form.

A second instrument was designed in the same manner to assess human resources. It was decided to send the survey form to all county staff so that each one could decide whether or not the survey applied to his or her program. Data were recorded by the Wisconsin Survey Research Laboratory. Prior to mailing, approximately 10 minutes of Educational Telephone Conference time with county office personnel was devoted to a discussion of the urban horticulture project, especially the agent survey form. The instrument was mailed with a cover letter from the Assistant Chancellor's office. Of the ones returned, 150 indicated an involvement with home horticulture. Similar instruments were sent to commercial organizations and municipal employees in Milwaukee County, the city of Oshkosh, and township of Lancaster.

The following section of this report presents these data in table form with a narrative analysis reducing them to more meaningful statements for program development. The tables are arranged in groupings related to program planning. The first section of the report is concerned with clientele data followed by the county agent data, support data, commercial interests, and municipal data. The last section of the report presents some basic considerations for moving into Phase II of the urban horticulture project.

THE CLIENTELE

Introduction

The following pages tabulate and interpret data obtained from the home horticulture samples. It details the kinds of content they were concerned with, where they obtained information about home gardening, ways information was received about home gardening, and background related to home gardening.

Information was gathered by the Wisconsin Survey Research Laboratory through a home owner telephone survey. The survey was conducted by using an interview schedule developed by content specialists. A probability sample of 428 was drawn from Milwaukee County by using telephone exchanges. From the city of Oshkosh, Wisconsin, a sample of 225 was drawn; and a sample of 199 was drawn from Lancaster, a rural area. The total sample from all three population areas was 852.

The subjects of each table were ranked on the basis of Milwaukee County data (large urban center).

The agreement or disagreement designated in most tables was arrived at through an analysis of variance (Scheffe's approximation) treatment and were based on a null hypothesis that there would be no difference between the average (mean) responses from each of the three population centers.

An acceptance of this hypothesis would result in the "Yes" designation and would suggest that any population variance could be expected to differ only within limits of chance.

On the other hand, a rejection of the hypothesis would result in a "No" designation. The difference may be in terms of either mean (average), variance, or both. However, it is unlikely in meeting the basic assumptions necessary for analysis of variance that it is the variance which differ. It is safe, then, to assume the difference is in the mean (average) score; and thus, the data were analyzed on that basis.

Content

Possible content needs are identified from four types of data: (1) interest in types of plants; (2) physical problems encountered in growing plants; (3) materials used in growing plants; and (4) level of knowledge compared with neighbors and friends.

Table 1. Extent of interest in types of plants--ranked by response from Milwaukee County but showing relationship with Oshkosh and Lancaster data

Plant Types	Means*(average) $M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$	Agreement
1 Lawns	1.382	1.418	1.542	Yes
2 Flowers (outdoor)	1.411	1.453	1.661	No
3 Shrubs	1.834	1.744	2.089	No
4 Ornamental or Shade Trees	2.155	1.828	1.918	No
5 Indoor Flowers and other House Plants	2.220	2.249	2.503	No
6 Landscape Design	2.425	2.162	2.576	No
7 Shrubs and Trees that Attract Songbirds	2.667	2.333	2.378	No
8 Vegetables	2.662	2.883	2.185	No
9 Fruit Trees	2.913	2.804	3.029	Yes
10 Small Fruits	3.371	3.293	2.936	No

*1=Lot, 2=Some, 3=Very Little, 4=None

Table 1 shows a ranking by interest of various types of plants. These data suggest Milwaukee County residents have a high degree of interest in lawn, outdoor flowers, shrubs, etc., and lesser interest in vegetable, fruit trees, and small fruit.

When data from all three population centers were subjected to analysis, agreement that lawns were of high interest emerged. There was only one other area of interest where this agreement occurred. That was with fruit trees, the 9th ranked item.

The mean scores for each population center suggest that lack of agreement on interest levels for outdoor flowers, shrubs, indoor flowers, vegetables, and small fruits was due primarily to the rural population center responses.

Lesser interest in ornamental or shade trees and shrubs and trees that attract songbirds would seem to be unique to the large urban setting represented by Milwaukee County. Landscape design, on the other hand, would seem to be of more interest to the small urban area.

Table 2. Reasons for interest in plants--ranked by response from Milwaukee County but showing relationship with Oshkosh and Lancaster data

Reasons	Means*(average) $M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$	Agreement
1 Self-satisfaction and plain enjoyment	1.152	1.169	1.055	No
2 Improve environment around house	1.171	1.289	1.050	No
3 Pride in neighborhood	1.248	1.440	1.085	No
4 Necessary to maintain property similar to neighborhood standards	1.654	1.676	1.749	Yes
5 Source of fresh, high quality produce for the family	1.722	1.698	1.387	No

*1=Checked, 2=Not Checked

Table 2 indicates interest is based on self-satisfaction, enjoyment, improvement of environment, etc., by Milwaukee County responses. The ranking would seem to be consistent with the small urban area (Oshkosh) but not with the rural Lancaster area. In fact, the ranking of one item--maintaining property similar to neighbors' standards--was the only one agreed upon by all three population centers.

Further evidence that a strong motive for working with plants is self-satisfaction, improvement in environment, and pride in neighborhood and property value is found in Table 3 where data suggests an agreement that publicly owned ornamental plants are very important. The strength of this motivation is indicated by the agreement among all three population centers that lack of knowledge about insects, weeds, and plant disease does not discourage them in gardening. (Table 4).

Table 3. Indicated importance of publicly owned ornamental plants by the respondents

	Means*(average)			
	$M_{Milwaukee\ County}$	$M_{Osh-kosh}$	$M_{Lan-caster*}$	Agree-ment**
Importance	1.257	1.243	1.344	Yes

*1=Great, 2=Moderately, 3=Very Little, 4=None
**F ratio at 5% level of confidence

Table 4. Extent lack of knowledge about plant disease, insects, and weeds discouraged gardening

	Means*(average)			
	$M_{Milwaukee\ County}$	$M_{Osh-kosh}$	$M_{Lan-caster*}$	Agree-ment
	1.911	1.893	1.914	Yes

*1=Yes, 2=No

Table 5. Extent to which certain situations with growing plants represent problems ranked by responses from Milwaukee County but showing relationship with Oshkosh and Lancaster data

	Means*(average)			
Situations	$M_{Milwaukee\ County}$	$M_{Osh-kosh}$	$M_{Lan-caster}$	Agree-ment
1 Weeds and control	2.571	2.626	2.650	Yes
2 Disease and control	3.020	3.102	2.875	Yes
3 Insects and control	3.053	3.016	2.904	Yes
4 Soil and fertilizers	3.129	3.242	3.399	No
5 Kinds of plants to select	3.331	3.292	3.506	Yes
6 Shade problems	3.547	3.582	3.699	Yes
7 Pruning	3.599	3.512	3.577	Yes
8 Rodents and undesirable birds	3.667	3.388	3.432	No
9 Seeding	3.736	3.849	3.742	Yes
10 Transplanting	3.736	3.831	3.758	Yes
11 Storage and preservation	3.751	3.672	3.702	Yes
12 Watering	3.805	3.746	3.802	Yes
13 Waste pesticides disposal	3.876	4.118	3.944	No

*1=Great, 2=Moderate, 3=Little, 4=None, 5=Does Not Apply

Table 5 ranks typical problems experienced by home horticulturists. Apparently, none are considered great problem areas. Weeds and control, disease and its control, insects, etc., appear to be situations where problems might arise while storage, watering, and waste pesticides disposal are problem areas to a lesser degree.

Interestingly, there is agreement on this ranking between population centers with the exception of soils and fertilizers, rodents, and undesirable birds and waste pesticides disposal. It would seem the rural responses suggested fewer problems with soil and fertilizer, while both rural and the small urban areas had more of a problem with rodents and undesirable birds. Pesticide disposal was skewed away from agreement by responses from the small city to the "does not apply" category.

Table 6. Materials associated with growing plants used on a regular or yearly basis

	Percentage		
Material	$M_{Milwaukee\ County}$	$M_{Osh-kosh}$	$M_{Lan-caster}$
Fertilizer	90.4	78.7	74.9
Weed Killer	72.0	47.6	36.7
Bedding Plants	50.0	49.8	47.7
Insect Killer	49.5	55.1	57.8
Peat Moss	47.2	48.0	29.1
Pesticide Applicators	38.1	38.2	46.2
Fungicides	19.4	14.2	20.6

Other clues to content needs can be found in Table 6 where percentage of responses from the sample to various materials are tabulated. From Milwaukee County, 90.4 percent of the responses indicated use of fertilizer while 72 percent used weed killer, and 50 percent used bedding plants, etc.

A visual analysis of these percentages shows similar responses from all three areas to fertilizer, bedding plants, insect killer, pesticide applicators, and fungicides.

Weed killer would seem to be quite unique to Milwaukee County (large urban area) while the use of peat moss on a regular basis is more unique to both the large and small (Oshkosh) urban areas, but not so by the rural respondents.

Table 7. Response to the question: Do you feel you know more, about the same, or less than your neighbors and friends about growing plants?

	Percentage		
Response	$M_{Milwaukee\ County}$	$M_{Osh-kosh}$	$M_{Lan-caster}$
More	28.3	31.1	21.6
About the Same	45.3	41.3	56.3
Less	23.8	25.3	21.1
Not Ascertained	2.6	2.2	1.0

Table 7 suggests that the level of knowledge is fairly consistent between all three population centers with a good percentage feeling they know about the same as their neighbors and friends. This suggests that adjustment in levels of knowledge may not be a serious problem in program development.

LEARNING ENVIRONMENT

Where Information is Obtained

The following eight (8) tables and their interpretations give some insight into the information gathering habits of the clientele, places where they obtain information, and ways they gain information.

Table 8. Where respondents go for help with plants and plant problems

Sources	Means*(average) $M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$	Agreement
1 Friends and neighbors	1.528	1.578	1.513	Yes
2 Plant and supply dealers	1.636	1.724	1.543	No
3 Don't seek help	1.860	1.796	1.915	No
4 Purchased information	1.893	1.884	1.879	Yes
5 University of any school	1.935	1.907	1.874	Yes

*1=Checked, 2=Not Checked

Table 8 suggests that friends and neighbors are a prime source of plant information in the large urban area represented by Milwaukee County. There is agreement on this point with both the small urban and rural areas.

The fact there was not agreement on plant and supply dealers as a source for help would seem to be influenced by the rural response in relationship to the small urban area response. The same is true of the category "Don't seek help."

A large number from the rural area sample indicated they did not seek help while the response from the small urban center seemed to request help, but plant and supply dealers represent a source for help utilized proportionately more by the rural areas.

Other sources of information mentioned include: The Milwaukee Journal, radio programs, yard workers, and landscape people.

Table 9. Responses to the question: Have you taken a class or attended a meeting in flower arranging, growing flowers or vegetables, care of trees, etc., over the last 2 years?

Response	Percentage Milwaukee	Oshkosh	Lancaster
Yes	5.1	9.8	7.5
No	94.2	90.2	92.5
Not Ascertained	.7	.0	.0

Table 9 supports the desire to seek information through informal situations rather than formal class situations. A high percentage of the samples in all three population centers had not been involved in classes recently.

Table 10. Where "know-how" for working with plants was acquired ranked by responses from Milwaukee County but showing relationship with Oshkosh and Lancaster data

Sources	Means*(average) $M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$	Agreement
1 Trial and Error	1.467	1.591	1.457	No
2 Parent	1.530	1.453	1.437	Yes
3 Friends and Neighbors	1.640	1.760	1.643	No
4 Reading Instructions	1.659	1.702	1.678	Yes
5 Commercial	1.904	1.947	1.854	No

*1=Checked, 2=Not Checked

The means of acquiring existing knowledge or "know-how" for working with plants reflects the informal approach to learning. Table 10 suggests that trial-and-error was important to the Milwaukee sample and rural Lancaster sample. Parents ranked second, and there was agreement among the three population centers on this placement. Friends and neighbors were listed as an important source by Milwaukee County and rural Lancaster. The sample from the small urban area (Oshkosh) did not seem to agree entirely with this viewpoint.

Also, responses from the interviewees suggested that plant information was easy to find, easy to understand, and satisfactory.

Interestingly, the commercial domain did not rank high as a source for existing know-how, but in Table 8 it was ranked high by Milwaukee County as a place to go for help with plant problems. This might be a conflict between people's expectations and what they actually receive.

Ways Information is Obtained

The next four tables show data received from items concerned with places where clientele might go for information.

Since there was evidence to suggest that universities and colleges ranked low as a place where citizens go for help with plant problems, it is important to note that a large percentage of the sample would be interested in using an expanded home garden information service if it were developed (Table 11). There seemed to be agreement among the three locations.

Table 11. Response to the question: If your University and University Extension would develop an expanded Home Gardener Information Service, would you be interested in using it?

Response	Percentage		
	Milwaukee	Oshkosh	Lancaster
Yes	55.4	54.2	58.3
No	27.8	29.3	30.2
Depends*	16.6	16.4	11.6

*1. If I had more land.
2. Depends on time and cost.
3. Am not interested in class--prefer literature and telephone.
4. Kind of information.
5. Can't understand English.
6. On health.

Table 12. Response to the question: How often do you personally use your public library or any of its branches such as the Mobile Unit?

Response*	Percentage		
	Milwaukee	Oshkosh	Lancaster
Often	25.2	22.7	18.6
Once in Awhile	39.0	35.1	38.7
Never	34.1	42.2	42.2
Not Ascertained	1.6	.0	.5

*Analysis of Variance shows agreement among the locations on this question.

Table 13. Response to the question: If your library expanded or developed an up-to-date gardening section, would you use it to look up information about plants and how to grow them?

Response*	Percentage		
	Milwaukee	Oshkosh	Lancaster
Yes	47.2	43.6	42.2
Possibly	24.1	20.4	27.1
No	27.3	35.6	29.6
Not Ascertained	1.4	.4	1.1

*Analysis of Variance shows agreement among the locations on this question.

Also, it would appear that all three population centers made some use of local libraries (Table 12) and would use them more if an up-to-date gardening section was added (Table 13). Again, all three population centers agreed on this point. Thus, it would seem that expanded home gardener information service and an up-to-date gardening section could help provide a broad base of information to home gardeners in all population areas.

Table 14. Where plants and gardening supplies are purchased--ranked by response from Milwaukee County but showing relationship with Oshkosh and Lancaster data

Places	Means*(average)			
	$M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$	Agreement
12 Garden centers	1.251	1.631	1.653	No
20 Nursery	1.629	1.658	1.673	Yes
28 Hardware	1.690	1.618	1.704	Yes
16 Department	1.793	1.867	1.935	No
32 Grocery store	1.833	1.716	1.533	No
36 Discount	1.878	1.502	1.945	No
40 Florist	1.880	1.778	1.487	No
24 Seed catalog	1.890	1.840	1.693	No

*1=Checked, 2=Not Checked

Garden centers were ranked first by the Milwaukee County sample as the place where gardening supplies are purchased (Table 14). The extent to which this is true would seem to be unique to the large urban setting of Milwaukee County. Nurseries and hardware stores seem to be a second grouping of places while grocery stores, discount stores, florists, and seed catalogs rank low. There was very little agreement among the responses among locations. This disagreement would seem to be influenced most by the rural response to department stores, grocery stores, florists, and seed catalogs. The disagreement on discount stores was influenced most by the small urban location. Availability, of course, would influence these responses, but still, it would seem that garden centers, nurseries, and hardware stores offer a source of information related to supplies used by the home horticulturists.

Table 15. Evaluation of ways in which information can be received--ranked by responses from Milwaukee County but showing relationship with Oshkosh and Lancaster data

Information Vehicle	Means*(average)			
	$M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$	Agreement
1 Newspapers	1.273	1.139	1.221	Yes
2 Printed bulletins	1.334	1.275	1.186	Yes
3 Television	1.470	1.336	1.359	Yes
4 Radio	1.634	1.569	1.401	No
5 Telephone	1.671	1.662	1.718	Yes
6 Demonstration	1.723	1.552	1.440	No
7 Personal consultation	1.784	1.744	1.553	Yes
8 Organized classes	1.811	1.812	1.692	Yes
9 Illustrated slides	1.920	1.805	1.806	Yes

*1=Good, 2=Bad, 3=Don't Know

There is more agreement among the three population centers on ways to receive information (Table 15) than on other factors in the learning environment. Newspapers, printed bulletins, and television are important ways of communicating urban horticulture information. There was agreement on the lower ranking of organized classes and illustrated slides. Illustrated slides may have been considered synonymous with organized classes, and the response was consistent in ranking these low. It would seem that, in general, similar communication vehicles could be used to reach all three population centers. During the interview, it was found that people would be willing to pay some token amount for well-illustrated publications, but not for consultant service.

The two items out of nine where disagreement was apparent were radio and demonstrations. Lack of agreement on radio as an information source seemed to be influenced most by positive responses from the rural areas, while disagreement on demonstrations was influenced by more negative responses from the urban area of Milwaukee County. Both of these ways for communication might be more effective for the rural areas than for the large urban complex.

BACKGROUND

The next four tables identify the sample by domicile, extent of farm background, occupation, and amount of education. The responses are labeled by percentages that show a degree of consistency among the three population centers.

There were three questions asked of each interviewee which would help define the universe from which the sample for the study was drawn: (1) Do you have plants such as trees, shrubs, vegetables, or flowers growing in or around your home? (2) Who in this household is responsible for outside plants such as trees, lawns, shrubs, vegetables, and outdoor flowers? (3) May I talk to (him or her) now?

These qualifying questions resulted in the sample living, for the most part, in one family dwellings and duplexes (Table 16).

Table 16. Domicile

	Percentage		
Place	$M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$
One family dwelling	72.9	87.1	91.0
Apartment	3.5	4.4	1.5
Duplex	21.7	6.7	3.0
Other	0.7	1.8	3.5
Not Ascertained	1.2	0.0	1.0

The majority of people in the sample did not have a background of farm experience (Table 17) which one might associate with knowledge of growing plants.

Table 17. Farm background

	Percentage		
Response	$M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$
Have a farm background	31.8	39.1	77.4
No farm background	67.1	60.9	21.1
Not Ascertained	1.2	0.0	1.5

Table 18. Occupations

	Percentage		
Occupation	$M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$
Professional--Tech	8.3	11.8	8.0
Farmer	0.0	0.0	4.0
Managers	3.5	1.7	5.5
Clerical	7.7	12.0	8.5
Sales	4.2	1.8	2.0
Craftsmen	4.9	9.3	3.5
Semi-skilled	5.8	5.3	4.5
Service worker	5.8	7.9	7.0
Housewife	47.4	37.8	48.7
Retired	7.5	5.3	5.5
Never worked	3.0	5.3	1.5
Not ascertained	1.9	1.4	1.0

This apparent lack of a background relevant to growing plants in the urban sample is substantiated by the fact that it was made up of people in the professions--managers, craftsmen, etc.--with the majority of responses coming from women responsible for the home (Table 18). Obviously, the people in the sample are makeups of busy adults with the majority having high school and college degrees (Table 19), but with a varied background of experience--all of which must be taken into consideration in program development.

Table 19. Amount of formal education

	Percentage		
Years	$M_{Milwaukee\ County}$	$M_{Oshkosh}$	$M_{Lancaster}$
0 - 11	27.5	24.3	23.6
High School graduate	46.0	39.1	52.3
Some college	13.0	22.3	13.5
College graduate	8.1	6.2	5.5
Post graduate	3.5	7.1	3.0
Not ascertained	2.1	.4	2.0

A visual analysis of the percentages from each population center presented in Tables 16, 18, and 19 suggests a high degree of consistency within the sample of these characteristics. This condition suggests that common assumptions regarding approaches to instruction, method of instruction, and strategy of instruction are possible as long as they are based on sound principles of adult learning.

CONCLUSIONS

It would seem there was a strong motivation, intrinsic in nature, upon which to build instructional programs concerned with awareness, knowledge, and application of knowledge, and that the clientele in all three population centers need programs with about the same difficulty level.

Information which would help explain fertilizer and insect killers would seem to be appropriate content for all three population areas.

Also, content related to problem solving which involve weeds and their control, disease and its control, and insects and their control should have high priority in program development for all three population centers.

A second level of problems-related content could deal with kinds of plants, shade, and pruning problems. Still a third priority level could be concerned with seeding, storage, and watering.

In addition, Milwaukee County and the city of Oshkosh would seem to have a high interest in outdoor flowers, indoor flowers, and other plants. Although it may be considered a lower priority, the urban areas also had a unique need for information about peat moss and pesticide applicators.

Friends and neighbors were a prime source of help for plants and plant problems in all three population areas, while parents ranked high as a source of acquiring knowledge for working with plants. Reading instructions was another way of acquiring information, but of a lower ranking.

It was quite obvious that all three population centers did not care for a formal class format for acquiring information.

All three areas agreed that an expanded home garden information service would be used and that an up-to-date gardening section in their library would be welcome.

Assuming that locations where garden supplies are purchased would be places to acquire information, all three population centers would profit from information gained through nurseries and hardware stores.

Newspapers, printed bulletins, and television should receive priority as means to reach all three population centers. Telephones would represent a second level, while personal consultation, organized classes, and slide sets would be less desirable for all three areas

Trial-and-error, or experimentation, was a highly ranked means by the Milwaukee County people to acquire knowledge for working with plants. Emphasis should be placed on problem solving as part of program development. This was not true of the Oshkosh sample. It would seem the small city environment would be more conducive to receive information from established sources.

Commercial sources, although not ranked high in importance, were places where both urban area people obtained knowledge.

Garden centers were ranked highly as places where plants and gardening supplies were purchased. This fact seems to be unique to Milwaukee County. There is agreement between Milwaukee and Oshkosh on seed catalogs, but this source of supplies was ranked low.

The urban population has many common characteristics: domicile; lack of information background and occupations that are not closely associated with soil; and amount of education.

Although much more could be learned about a specific learning group which could affect approach, method, and so forth, it would be inferred that consideration of sound principles of adult education would apply to all three population centers and lead to very effective program outcomes.

RESOURCES

Introduction

Home horticulture was defined in the following way for purposes of this study:

> Those programs and activities that relate to the arrangement, selection, planting, growing,and maintenance of trees, shrubs, flowers, lawns, home food garden,and other plant materials in and/or around dwellings including protection from and the control of plant insects, disease,and weeds.

Three categories of human resources were identified and evaluated in terms of possible contribution to needed program development. They were: (1) individuals employed by a county and the University of Wisconsin cooperating (county agent); (2) governmental employees such as ground maintenance people; and (3) commercial interests. County agent data were treated in more detail simply because they were more substantial and could be used as a basis for looking at the other two categories. Generally, three clusters are organized: (1) time available; (2) preparation related to content; and (3) experience with various communications media. A fourth cluster dealt with kinds of backup (support) apparently needed by agents.

The way data are reported for this part of the study reflects the desire to identify the extent and availability of human resources. Therefore, the data are tabulated for the most part by numbers of people responding to an item (frequency) and/or percentage of total group (150). The narrative analysis is simply to narrow down the meaning of eacn table for tne purpose of relating the findings to future program efforts.

The five tables that follow are designed to tabulate data which would give insight into amount of time available for various activities related to program development in home horticulture.

TIME

Table 20. Percentage of total daily work time connected with county responsibilities devoted to home horticulture activities

Number of Agents	Percentage of Time
93	0-9
43	10-24
9	25-49
3	50-74
2	75-100

Table 20 shows that 136 county agents from a total of 150 responding had less than 24 percent of their total daily work time available for home horticulture needs. And of this group, more than half had less than 9 percent of their time available. (The assumption was that since they responded, none of the 150 agents were spending zero time as a group.) Obviously, the county agent does not have much time to spend on home horticulture needs, a fact having an impact on the type and extent of program development in the state.

Table 21. Percentage of available time used in disseminating horticulture information direct to home horticulturist

Number of Agents	Percentage of Time
9	0
4	1-10
8	11-20
25	21-30
54	31-50
16	51-70
17	71-90
16	More than 90

Table 22. Percentage of available time used in disseminating horticulture information through commercial and government agencies

Number of Agents	Percentage of Time
77	0
48	1-10
12	11-20
6	21-30
5	31-50
0	51-70
0	71-90
1	More than 90

Table 23. Percentage of available time used in defining and developing horticulture programs direct with home horticulturist

Number of Agents	Percentage of Time
52	0
43	1-10
23	11-20
17	21-30
12	31-50
2	More than 50

Table 24. Percentage of available time used in defining and developing horticulture programs through commercial and government agencies

Number of Agents	Percentage of Time
97	0
40	1-10
9	11-20
2	21-30
1	31-50
0	More than 50

An examination of Tables 21, 22, 23, and 24 would indicate that most of available time was used to disseminate horticulture information directly to the home horticulturist in contrast to working through commercial and government agents. The same trend is apparent in defining and developing programs. County agents in Wisconsin do work directly with home horticulture.

PREPARATION RELATED TO CONTENT

Table 25. Number and percentage of agents taking 1-10 credit courses in selected subject areas over the last 5 years--ranked by percentage

Subject Area	Number (150 possible)	Percentage
Soils	29	23.2
Program Planning	28	18.8
Horticulture	28	18.7
Botany	27	18.0
Instructional Technology	21	14.7
Plant Pathology	21	14.0
Entomology	19	12.6
Landscape Architecture	9	6.0

Table 26. Number and percentage of agents taking 1-10 noncredit courses in selected subject areas over the last 5 years--ranked by percentage

Subject Area	Number (150 possible)	Percentage
Soils	16	11.4
Horticulture	11	7.4
Landscape Architecture	11	7.4
Plant Pathology	8	5.4
Entomology	4	2.8
Program Planning	4	2.8
Instructional Technology	3	2.0
Botany	0	0.0

Table 27. Number and percentage of agents attending 1-10 conferences in selected subject areas over the last 5 years--ranked by percentage

Subject Area	Number (150 possible)	Percentage
Horticulture	67	44.6
Soils	60	40.7
Entomology	54	36.0
Program Planning	48	32.1
Landscape Architecture	43	28.6
Plant Pathology	42	28.0
Instructional Technology	11	14.6
Botany	2	1.3

It would appear that a number of county agents have had recent course work in a number of important content areas including: soils, horticulture, botany, plant pathology, and others (see Tables 25,26, and 27.) Fewer individuals have attended noncredit courses, especially in plant pathology, entomology, program planning, instructional technology, and botany than either credit courses or conferences. It would seem, due to attendance at conferences, a substantial number of county agents have content capability which represents an important resource for program development in home horticulture.

Table 28. Items of special professional interest to agents ranked by mean score

Items	Mean Score*
1. Disease	3.41
2. Weed control	3.22
3. Fruit trees	3.20
4. Flower gardens--outdoors	3.18
5. Lawns	3.10
6. Vegetable gardens	2.97
7. Trees--ornamental	2.84
8. Landscaping	2.79
9. Shrubs--ornamental	2.77
10. Insects and mites	2.72
11. Small fruits	2.64
12. Waste pesticides containers	2.41
13. Pests (birds and small animals)	2.36
14. Ecology of plant life	2.30
15. House plants	1.91

*1=None, 2=Some, 3=Much, 4=Very much

Another indicator used to identify content expertise was the professional interest indicated by county agents. Table 28 shows there was a great deal of interest in disease, weed control, fruit trees, and outdoor flower gardens. And as a group, some interest was expressed in a number of other relevant content areas. This professional interest would be an important key for locating special content expertise in program development.

Table 29. Number of agents desiring to do cooperative research with university and industry staff

	Yes		No		Undecided	
Staff	No.	Percent	No.	Percent	No.	Percent
University	86	57.3	45	30.0	19	12.7
Industry	66	44.0	62	41.3	22	14.7

Still another indication of potential available content resources is shown in Table 29. There does appear to be a fairly high interest in doing research with campus-based faculty and to a lesser extent with industry.

Table 30. Experience with special need clientele ranked by number of agents involved

Clientele	Number of Agents Involved
Youth	58
Low income	10
Retired groups	4
Growers	3
Garden clubs	3
Welfare	1
Wealthy	1
Apartment dwellers	0

Table 30 points out special clientele groups that agents have worked with in home horticulture. Although there are relatively small numbers in those other than youth groups, they represent an important resource in program development.

Within the limitations explored, other than available time, county agents as a group seem to represent a good content resource for program development.

EXPERIENCE WITH COMMUNICATIONS MEDIA

Human resources identified not only represented subject matter knowledge but also collectively possessed knowledge in the use of various communications media through experience. Identifying and bringing to bear this expertise on program development seemed to be an important function for this project.

Table 31. Extent of experience with various communications media on a fixed, uniform base--ranked by total number of users

Communication Vehicle	Number of Users	Number per year			
		1-10	11-25	26-100	>100
Radio	62	52	7	2	1
Newspapers	54	49	1	2	2
Telephone	40	14	7	9	10
Visitations	29	17	5	7	0
Newsletters	27	24	3	0	0
Pamphlets	15	6	3	4	2
Circulars	14	5	5	4	0
Television	13	12	1	0	0
Clinics	6	6	0	0	0
Workshops	5	4	1	0	0
Magazine articles	3	3	0	0	0
Books	1	1	0	0	0

Table 31 clearly identifies three types of communication media with which agents have had considerable experience: (1) radio; (2) newspapers; and (3) telephone. Radio is used by some agents more often than the other two types. The telephone could be viewed as a mass media device because of its frequency of use and not because of the number of people it would reach at any one time. If these communication media have characteristics important for better information flow, identified agents could contribute to their wise utilization.

Table 32. Extent of experience with various communication media on a rare or irregular basis--ranked by total number of users

Communication Vehicle	Number of Users	Number per year 1-50	51-500	500-1000	>1000
Visitations	73	41	30	1	1
Telephone	60	23	25	1	11
Radio	58	49	9	0	0
Newspaper	56	51	5	0	0
Workshop	48	47	1	0	0
Newsletters	46	45	1	0	0
Television	44	44	0	0	0
Pamphlets	40	17	17	0	6
Clinics	37	37	0	0	0
Circulars	37	21	12	2	2
Magazine articles	6	6	0	0	0
Books	3	3	0	0	0

A second level of knowledge would be found in various communication media that agents use on an irregular basis. Table 32 identifies these media. With the exception of visitations, ranked number 1, and magazine articles and books, ranked lowest, the tabulation shows about an equal use of several such communication media on an irregular basis. Should more priority be given to some of these for more information/home horticulture information? Certainly, the base of experience represented by a few agents could help answer this question.

Table 33. Most desirable businesses, serving home horticulture needs, to work with at the present time

Businesses	Response from Agents
Greenhouse operators	67 (150 possible)
Garden centers	64
Grounds/maintenance	56
Landscape firms	41
Sod growers	17
Chain stores	15

One of the underlying assumptions of the Wisconsin study was that a broad base for communicating urban horticulture information was necessary. This would include not only electronic and printed media but also human resources. Table 33, for example, shows some kinds of businesses serving home horticulture needs that agents feel would be desirable kinds for helping transmit information. Greenhouse operators, garden centers, and ground maintenance people rank high on the table.

Table 34. Most desirable business, serving home horticulture needs, to work with in the future

Business	Response from Agents
Garden center	60 (150 possible)
Grounds/maintenance	59
Greenhouse	57
Landscape firms	41
Sod growers	28
Chain stores	27

Although the same businesses rank high in importance to future development (Table 34), it is obvious that agents view all of them important in future programs for urban horticulture. Working through these businesses represents potential in broadening the base for disseminating horticulture information.

Table 35. Resources used to disseminate home horticulture information

Resources	Number of Agents
Municipal	29 (150 possible)
Commercial	21
Nonprofessional organizations	20
Specialists	17
Agencies	16
Vocational/Tech College	12
Semi-professional organizations	11
Libraries	8
University Center System	7
Professional organizations	5

In addition to business, there is a host of other resources that might be used to disseminate horticulture information. Table 35 lists a number of these.

Although not used extensively, municipal, commercial, and nonprofessional organizations are resources used to disseminate horticulture information. There are agents who have had experience working with them. Libraries, the University Center System (2-year colleges located around the state), and professional organizations are used very little. But still there is evidence that libraries, for example, would be used more if they had an up-to-date home gardening section. (See Table 13, page 43.) It would seem these units could, if properly encouraged, contribute much as a means for distributing needed home horticulture information.

Table 36. Resources used to sponsor home horticulture projects

Resources	Number of Agents
Commercial	10 (150 possible)
Nonprofessional organizations	9
Municipal	5
Agencies	3
Professional organizations	2
Specialists	2
Semi-professional organizations	1
Vocational/Tech College	1
University Center System	1
University	0
Library	0

Table 36 suggests that these same resources are presently being used very little as sponsors of events for disseminating home horticulture information. Could they, or should they, become involved? This would seem to be a key question in program development for broad base dissemination of needed home horticulture information.

NEEDED SUPPORT

The kind of support provided to the agent was thought to be an important link in the process of disseminating horticulture information. The next three tables present data related to that point of view.

Table 37. Some items and circumstances needed by agents to accomplish home horticulture goals--ranked in order of importance

Items and Circumstances	Mean Score*
1. Budget for support materials at county level	2.71
2. Demonstration facilities	2.69
3. Instructional materials provided by specialist	2.37
4. Time to develop and present instructional programs	2.30
5. Acquiring publications	2.26
6. Assistance in instructional technique	2.21
7. Diagnostic support service	2.21
8. Available research	2.13
9. Time to analyze local problems	2.09
10. Trained Extension horticulturist	1.98
11. Relating to changing life styles	1.88
12. Recognition of home horticulture by superiors	1.87

*1=No Need, 2=Some need, 3=Extension Need

Table 37 is a ranking of items and circumstances needed by agents at the present to accomplish home horticulture goals. As might be expected, budget is ranked first in importance, followed by demonstration facilities, instructional materials, etc. Recognition of the importance of home horticulture by superiors would seem to be a fact at the present since that item ranked last in terms of need.

Table 38. Some items and circumstances thought to be important for future development of home horticulture programs--ranked by number of responses

Items and Circumstances	Number of Responses
1. Instructional materials provided by specialists	26
2. Time to develop and present instructional programs	21
3. Trained Extension horticulturist	14
4. Acquiring publications	12
5. Recognition of home horticulture as an important commitment by power structure	11
6. Assistance in instructional techniques	10
7. Diagnostic support services	9
8. Relating to changing life styles and values	5
9. Budget support for materials at county level	3
10. Demonstration facilities	2

When asked what items and circumstances were important to future developing of home horticulture programs, a different listing of priorities emerged (see Table 38). Instructional materials ranked first, followed by time to develop programs, acquiring of trained Extension horticulturists, etc., while budget was ranked 9th, and demonstration facilities 10th. Continuation of present endorsement of the importance of home horticulture would be necessary to future development of programs. There is a major challenge to provide support to agents. The basis of this challenge is the apparent need to provide for the present situation, but recognizing that different kinds of support may be needed to assure future program development.

Table 39. Resources used to gain home horticulture information

Resources	Number of Agents
Universities	96 (150 possible)
Specialist	93
Commercial	44
Libraries	35
Professional organizations	29
Agencies	16
Municipal	8
Semi-professional organizations	7
Nonprofessional organizations	5
Vocational/Tech College	2
University Center System	0

Where do agents go to gain home horticulture information? Table 39 suggests that universities and specialists rank high (over one-half of the agents use these sources). Commercial establishments, libraries, and professional organizations seem to be a second grouping while municipal agencies, semi-, and nonprofessional groups and smaller college systems represent a third grouping with less use. Obviously, there are many resources which could become more effective in helping agents acquire home horticulture information.

The question of what content support might be important to agents now might be answered by analyzing the data presented in the next 12 tables. The order of tables rank the importance of various problem categories while each table ranks the area to which the problem is related. For example: Disease problems are ranked first (see Table 40), and they are related first to vegetable gardens; second to lawns; etc. Second ranked problem category is insects and mites, and most agents relate the problem area to vegetable gardens (Table 41).

Table 40. Home horticulture areas to which agents related disease problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Vegetable gardens	23
Lawns	20
House plants	6
Flowers (outdoors)	2
Trees (ornamental)	2
Shrubs	1

Table 41. Home horticulture areas to which agents related insects and mites first--based on number of inquiries

Home Horticulture Area	Agents Responding
Vegetable gardens	27
Ornamental trees	7
House plants	5
Shrubs	3
Small fruits	3
Fruit trees	2
Flowers	1
Lawns	1

An analysis of the remaining 9 tables suggests that weed problems (Table 42) rank 3rd and relate to vegetable gardens and lawns. Fertilizer problems exist and relate to vegetable plants and lawns (Table 43). Pruning problems relate to shrubs and fruit trees for most agents (Table 44). Variety choice seems to be related predominantly to vegetable gardens (Table 45). Seeding lawns, vegetable gardens, house plants, flowers, and shrubs also ranked the same as variety choice.

Seventh ranked problem category is related to transplanting of shrubs for the most part (Table 46). Eighth ranked category is related to pest problems and seems to be concerned with vegetable gardens and lawns, as well as fruit trees, etc. (Table 47).

Table 48 suggests that problems related to watering would be associated with lawns and house plants for the most part. There were relatively few responses related to the 10th ranked problem category--waste pesticides and their containers. Those that did respond to this category did so in relationship to vegetable gardens (see Table 49).

Table 42. Home horticulture areas to which agents related weed problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Vegetable gardens	45
Lawns	25
Small fruits	2
Landscape	1
Shrubs	1

Table 43. Home horticulture areas to which agents related fertilizer problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Vegetable plants	23
Lawns	20
House plants	6
Flowers (outdoors)	2
Trees (ornamental)	2
Shrubs	1

Table 44. Home horticulture areas to which agents related pruning problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Shrubs	26
Fruit trees	25
Ornamental trees	8
Flowers (outdoors)	2
Landscaping	1
Small fruits	1

Table 45. Home horticulture areas to which agents related variety choice problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Vegetable garden	15
Shrubs	7
Fruit trees	6
Small fruits	4
Flowers	3
Lawns	3
Ornamental trees	3
House plants	1
Landscaping	1

Table 46. Home horticulture areas to which agents related transplanting problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Shrubs	22
Flowers	7
House plants	6
Ornamental trees	6
Vegetable gardens	3
Lawns	1
Landscaping	1

Table 47. Home horticulture areas to which agents related pest problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Vegetable gardens	10
Lawns	9
Fruit trees	5
Small fruits	4
Shrubs	3
Ornamental trees	2
Landscaping	1

Table 48. Home horticulture areas to which agents related watering problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Lawns	12
House plants	9
Vegetable gardens	2
Ornamental trees	2
Shrubs	1
Flowers	1

Table 49. Home horticulture areas to which agents related waste pesticides and their containers problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Vegetable gardens	9

Table 50. Home horticulture areas to which agents related pollution problems first--based on number of inquiries

Home Horticulture Area	Agents Responding
Lawns	4
House plants	2
Vegetable gardens	2
Flowers	1
Shrubs	1
Ornamental trees	1
Fruit trees	1

Pollution problems were ranked last (Table 50) in relationship to other problem areas considered. The few responses to this category did not seem to relate to any specific area, with exception perhaps of lawns.

This ranking of both waste pesticide containers and pollution might be due to lack of understanding since both categories are relatively recent concerns--a fact to consider in providing content support.

COMMERCIAL PROFILE

Emphasis was placed on the county agent as a valuable human resource in developing home horticulture programs in Wisconsin. However, it was recognized that the commercial sector was also an important resource. Therefore, a survey similar to the agent survey was mailed to a selected group of commercial establishments. Questionnaires were received from 50 light commercial concerns in Milwaukee County, 19 from Oshkosh, and 8 from Lancaster for a total of 85 responses.

The questionnaire was designed to give some insight into the time committed to answering home horticulture questions, content expertise, and avenues of communication and needed support. Following is a narrative summary of those data.

All respondents were involved in answering home horticulturists' requests for assistance. Over one-half report much or very much involvement. About one-half believe they will be more involved in home horticulture assistance in the future, and one-half predict they will maintain the present level of involvement. Most commercial respondents supervise employees, with 1-5 being the most common number. Four percent supervise over 20 people. Approximately one-half of all employees are assigned the duty of answering home horticulture questions. Two-thirds of all respondents encouraged public requests for information. Three-fourths willingly answered nonsolicited requests, but 40 percent confined these questions to products sold or serviced offered.

Over one-half of the respondents have been working in the area of horticulture for more than 15 years, and one-fourth have been in horticulture 8 to 15 years. About one-half of all respondents have had formal training in horticulture. Nineteen percent have attended a university, and 15 percent a short course. The Landscape Contractors Association, Wisconsin Nurserymen Association, and Wisconsin Florists Association are the most prominent professional organizations. Grounds Maintenance, American Nurseryman, and Weeds, Trees and Turf are the most widely read publications.

Requests for assistance reach commercial people primarily through phone and office calls. Most calls are received in spring. Twelve percent of the respondents conduct educational programs for home horticulturists. Programs consist mainly of bulletin distribution, meetings, and demonstrations.

About 45 percent of the commercial people encourage their employees to improve their subject matter knowledge. Most employers like to see training sessions held within 50 miles of their places of business. Fifty percent would prefer to pay $10.00 for a special workbook, and 50 percent would prefer mimeographed loose leaf sheets at $2.00. The months of January, February, March, and December are preferred for training sessions. One-third of the employers pay all expenses for training, and one-fourth pay part of the expenses. There is an extensive need to keep up to date on pest diagnosis and control and plant pesticide laws. Some need for training exists for all phases of horticulture. About one-half of all respondents are aware of Extension and its home horticulture services, and one-half of the respondents utilize these services. Distribution of publications is the Extension service most frequently used. Educational functions most frequently attended are area turf conferences, Wisconsin Landscape Federation meetings, and county grounds maintenance sessions. Commercial organizations receive most questions in the areas of turf, landscaping, shrubs, flowers, and trees. Relatively few questions are received about fruit or vegetable gardens. Clientele problems are most frequent in the area of soil and fertilizer, pests, seeding, and plant selection. Commercial concerns indicate a need for assistance in answering questions about insects, diseases, rodents, pesticide disposal, and organic gardening.

Relatively few concerns charge clientele for any service except work actually performed. Forty-two percent have used the services of the University of Wisconsin soil testing laboratory, and 71 percent have referred clientele. Seventy-one percent of all respondents would like to see an expanded university plant pest identification and control service. One-half indicate customers would pay for such service.

Assistance desired is in the form of more bulletins, annual training sessions, and special workshops. Newsletters, circulars, and TV programs are Extension activities for home horticulturists that respondents would like to see increased. Most respondents indicate that none of the current Extension activities should be reduced. About 75 percent of all respondents sell or use pesticides, and only 16 percent of those handling pesticides would discontinue use or sales if licensing became a fact. Seventy-five percent want to participate in training sessions that would enable them to pass examinations required for licensing.

GOVERNMENTAL UNITS PROFILE

The following profile of governmental units was the result of surveying 27 units in Milwaukee County, 9 in Oshkosh, and 5 in Lancaster. The profile describes to some degree the time used to help people.

Almost all of the respondents have been involved in answering home horticulture questions for over 15 years. About two-thirds devoted 1 to 9 percent of their time to horticulture, and one-third devoted from 10 to 24 percent of their time to home horticulturists. Over one-half of the employees of governmental units answered questions as assigned duty. Over one-half of the governmental units encouraged public contact, and one-fifth said the public should pay for this service.

Over one-half of all respondents have a B.S. degree, and many of them supervised other people. The most popular professional organizations are the American Horticulture Society and the Wisconsin Arborists Association. However, less than one-fifth of the respondents belonged to any one organization. Ground Maintenance, American Nurseryman, and Weeds, Trees and Turf are the most widely read publications.

Many governmental units encourage their employees to improve their subject matter knowledge by attending university-sponsored meetings. Most would prefer to send their employees 50 miles or less for training. They are generally interested in cooperating with Extension. One-third of the respondents have meeting rooms and demonstrations for this purpose.

In general, their clientele ask questions about turf, shrubs, and shade trees. They asked fewer questions about small fruits, outdoor flowers, and vegetable gardens. In addition, governmental units asked for help in answering questions about house plants, diseases, insects, waste pesticide disposal, and storage and preservation. Over one-half of the governmental units refer people to Extension specialists, and relatively few refer people to various schools, commercial sources, or libraries.

The responses from governmental units surveyed indicated they would not object to paying a realistic fee for loose leaf, mimeographed handout materials.

The most frequently attended Extension-sponsored educational functions were the area turf conferences, area or county grounds maintenance programs, urban horticulture field days, and the Wisconsin Pesticide Conference with Industry.

CONCLUSIONS

Data were organized around four main groupings: (1) data from county agents; (2) data on needed support; (3) a profile of commercial interests; and (4) a profile of governmental agencies. Findings in groupings 1, 3, and 4 were clustered around time devoted to home horticulture, preparation related to content, and experience with various communication media.

County Agent as a Resource

County agents have a limited amount of time to devote to home horticulture. Those who do have more time are most likely employed by a large urban county. County agents do work directly with the home horticulturists in defining programs and in disseminating information.

As a general rule, agents keep up with their subject matter through conferences and by credit classes. Conferences are well attended. As a group, the county agents have high professional interest in disease, weed control, fruit trees, and outside flower gardens. A large percentage would be interested in doing research, especially with university specialists. Many of them have had experience with youth groups and low income families. The county agent is obviously a valuable content resource for future program development.

In addition, the county agents as a group have had considerable experience in communication by radio, newspaper, and telephone as a regular part of their work. A large number of media have been used on an irregular basis. Besides electronic and print media, they have worked with greenhouse operators, garden centers, and ground maintenance people. The agents view these as important for future development. A host of other organizations represent a potential for future development, including 2-year college systems and libraries.

Backup

Budget and demonstration facilities were items ranked by the county agent as important support. These were followed by instructional materials. For future development, instructional materials were ranked 1st, followed by time, to develop programs and acquiring trained extension horticulturists. Insects and mites, and weed problems as they were associated with vegetables, lawns, and ornamental trees, were considered important problems areas and, thus, required greater effort to solve.

Commercial Profile

Employees of commercial interests were involved in answering home horticulture questions and would probably continue to do so. They, in fact, encouraged this activity. Most of the people contacted had been working in home horticulture for 15 or more years. Many of them had formal training and belonged to professional organizations. They answered questions by telephone. A small percentage conducted educational programs through bulletin distribution, meetings, and demonstrations. As a group, they are encouraged to improve themselves professionally by their employers. They are interested in an up-to-date pest diagnosis and control, plant pesticide laws, insect, rodent, and organic gardening. They do attend many University of Wisconsin conferences. And a large number want to participate in training sessions that would enable licensing for handling pesticides.

Governmental

Governmental units have been involved in answering home horticulture questions, in many cases as assigned duty. Employees are encouraged to answer questions. Apparently a large number of employees of the units responding to the survey had B.S. degrees, and they were encouraged to continually improve subject matter knowledge. They have a particular interest in turf, shrubs, shade trees, house plants, disease, insects, waste pesticide disposal, storage, and preservation. Governmental units refer people to extension specialists for particular problems. A large number of governmental unit employees seem to attend the University of Wisconsin turf conference, ground maintenance programs, field days, and pesticide conference.

SUMMARY

The task was conceived as gathering relevant information, assembling the information, and describing it in a way it could be used to develop educational programs. The study had the following specific objectives:

1. Gather information about the clientele including needed content, where information was obtained, ways information was received,and some background information.

2. Identify human resources among county agents, commercial industries, and municipal units.

3. Determine kinds of support needed by the identified resources to make them more effective.

The dissemination of needed horticulture information to urban residents in Wisconsin should evolve around a broad instructional program and not just isolated information disseminating techniques. Such a process would take full advantage of all resources including physical resources such as buildings, parks, and persons.

As a result of this inquiry, a lot of information became available upon which to develop programs in home horticulture--more understanding of the clientele, more complete identification of available resources, and the kind of support they might need. At this point, however, it is only information.

A decisionmaking framework which will allow one to proceed in applying information is needed. Decisions in program planning using this information would take into consideration the strong motivational characteristics exhibited by the clientele. Decisionmaking would recognize the similarities and differences in clientele between the large urban area (Milwaukee County), small urban area (Oshkosh), and rural area (Lancaster) and the strengths and weaknesses of resources available from county offices, business, and municipal units.

The importance of professional judgment cannot be overlooked. It is this dimension which will determine if the ranking of certain items is the result of being uninformed or of a true lack of knowledge.

A framework for decisionmaking would seem important to eliminate the possibility of overlooking some important implications of the data of program development, the various ways in which one can discharge information, the means one has for discharging information, and the human reasons and techniques for discharging information.

The information can be applied to program development on two levels. First, it can be applied on a broad program development level (curriculum development). For example, what are the broad areas of content to be covered? What variety of resources exist? Secondly, the information may be applied to a specific learning situation--for example, a grounds maintenence workshop on turf. The bilevel concept of applying information would have an impact on the types of leadership and coordination in developing programs. It would suggest a task of finding gaps where projects should be developed and actual accomplishment of these projects.

Also, the bilevel concept of using information generated in this study and the identification of the decisionmaking framework will provide a basis for evaluation. The decisions made at the program level of planning (curriculum development) can be evaluated by using the narrative analysis of each information cluster. For example, did the program plan reflect the kind of strength of motivation exhibited by the clientele? The project can be evaluated not just on content but on ways it was presented, means of presentation, strategy, and communication techniques. Because decisions were made based on information gathered, they can be tested for the purpose of improving the project. Evaluation is, in this case, a two-level undertaking.

A framework that would provide a reasonable mix between fact, creativity, and professional judgment is required. Identification of approaches for information transfer can be assured by broad based involvement.

However, identification of information dissemination approaches is not enough unless full advantage is taken of all information generated and reported in this manuscript. Consideration of the methods used is important. For example, data in this study strongly suggests that people don't like formal classes; they like to learn from their friends and neighbors. What method of instruction would be best? Similarly, human goals will need to be considered. Is there need for acquisition of plain fact, application of problem solving, and so forth? And finally, a decisionmaking framework should force the consideration of devices for communication. This study would support the printed bulletin as a very desirable way for clarifying information.

Approach, method, strategy, and technique--checkpoints for making program design decisions based on information recorded in this report--would constitute a framework for decisionmaking and applying the information.

PART III

THE EXTENSION SERVICE-USDA REPORT[1]

By Robert A. Wearne

INTRODUCTION

This national survey is part of a study being conducted by Extension Service, U. S. Department of Agriculture, to identify efficient and effective Extension methods being used for home horticulture programs. A copy of the survey questionnaire that was sent to state Extension directors is in the appendix. Subject matter specialists involved in Extension home horticulture programs responded to the questionnaire.

The survey attempts to more accurately understand the scope and extent of the Cooperative Extension Service home horticulture program. Information gathered will expedite the exchange of educational materials and methods among state Extension specialists.

It deals with such factors as educational techniques, man-years involved, trends in demands for assistance, audience characteristics, and educational aids having potential national use.

All states, Puerto Rico, and the Virgin Islands participated in the survey.

A joint pilot project between Minnesota-Wisconsin and Extension Service, USDA,is included in the overall home horticulture study.

SUMMARY

Extension Home Horticulture: In this survey, Extension Home Horticulture is defined as those programs and activities that relate to the arrangement, selection, planting, growing, and maintenance of trees, shrubs, flowers, lawns, home food gardens, and other plant materials in and/or around dwellings, including protection from, and the control or management of, plant insects and diseases and weeds.

The EMIS purposes developed by each state reflect local situations and the needs or interests of the audiences being served. Some purposes pertained strictly to landscaping, beautification, environmental improvement, and pollution control. Other purposes, however, were developed to include fruits and vegetables produced at home as well as the ornamental plants being grown. Some purposes identified specific programs such as plant nutrition, soil fertility, insect and disease control, rodent control, and efficient crop production and management. No state restricted home horticulture purposes to plant materials and associated cultural practices. Purposes include housing construction and repair, sanitation, financing, home furnishings, home safety, and similar consumer programs.

Fifty states have organized Extension educational home horticultural programs. Forty-two respondents associate their need for a home horticulture program with the increasing population; growing suburban developments; greater awareness of natural beauty; environmental concerns such as noise abatement, air and water pollution; and the increasing requests from professional and amateur horticultural groups and public and private agencies.

The Extension staff nationally devotes 500 man-years annually to the home horticulture program. This includes state, area, county, and paraprofessional staff members.

The demands for Extension assistance on home horticultural problems during the past 3 years increased in 49 states and remained the same in only one state.

Service type activities such as plant identification, plant insect and disease diagnosis, soil analysis, and miscellaneous telephone calls are showing similar increases.

The home horticulture audiences being reached by state Extension services were identified according to educational and income levels. Their educational levels were characterized as low--less than high school; medium--high school; and high--college. Five states indicated an extensive increase in the size of audiences from the low educational levels. In contrast to this trend, 19 states had extensive increases in the audience of high educational levels. Three states reported their home horticulture audiences having less than a high school education are decreasing.

In the survey, the home horticulture audience was also identified by income levels. These levels were: low--less than $3,000 per year; medium--$3,000 - $10,000 per year; and high--over $10,000 per year.

No state reported a decrease in audience size for any of the income levels.

Moderate increases in audience size were reported by 22 states for the low income level, by 33 states for the medium income level, and by 25 states for the high income level.

Extensive increases in size of audience with high income occurred in 18 states. This exceeded the other two income levels where 12 states reported extensive increases at the medium level and 5 states had extensive increases at the low income level.

The number of CES contacts asking for home horticulture programs or information from groups and organizations such as garden clubs, plant societies, and by individual telephone and office calls are increasing. Twenty-nine states reported a moderate increase in contacts by groups and organizations. Thirty-six states reported an extensive increase in individual contacts.

Service type activities performed by Extension specialists for the home horticulture audiences are associated with plant specimen identification, plant disease diagnosis, plant insect management, soil testing, and soil management programs.

Forty-four respondents reported an increase in the plant specimens examined for disease diagnosis, and 29 reported receiving a total of 99,000 soil samples for analysis.

[1] Fifty states, Puerto Rico, and the Virgin Islands participated in this survey. Statistics may not always total 52, since replies were not made to all the survey questions. The survey questionnaire was sent to state Extension directors. The subject matter specialists involved in home horticulture programs responded to the questionnaire.

In commenting about service type activities, 36 respondents believe these activities should be encouraged. They justified their opinions on the premise that the problems and educational needs of people must remain important to the Land Grant universities. Also, these activities involve many types of people and bring new audiences to the Cooperative Extension Service. These respondents believe that the Cooperative Extension Service has a definite obligation to these people because they are taxpayers, and as the population increases and moves from rural to urban areas, this audience will generate support for the Extension programs. Further, if we are to continue to improve the environment and make this country a better place to live, some form of home horticultural educational program must be provided.

Three respondents made no report about service type activities. Reports from seven suggested these activities should be maintained at the current level. Four respondents said these activities should be discouraged.

It was frequently stated that the organized educational programs in home horticulture create a paradoxical situation, for as the Extension education programs increase, the service type activities correspondingly increase. Statements were also made that CES has obligations to this audience and the Land Grant universities have responsibilities for developing home horticulture educational programs that are based on local urgency. The justification and support for providing Extension programs and an adequate staff to fulfill the commitments can then be based on local decisions.

When possible, services on an individual basis should be confined to the county level. However, the county staffs not trained in the subject matter areas associated with home horticulture lack confidence and have a difficult time developing programs.

The limited resources at the state level are more efficiently and effectively utilized when devoted to planning and directing workshops and clinics, preparing publications and mass media information, or training county staffs or paraprofessionals.

Forty-seven respondents favor increasing the Extension educational programs for urban horticulturists, and 34 respondents favor increasing this program in rural areas. Also, for the rural home horticulture program, 14 respondents proposed maintaining the program at the current level, one supported decreasing the program, and two said the program should be maintained at the current level.

Eighty-seven businesses, organizations, agencies, and societies that helped promote and conduct Extension home horticulture programs were identified by the survey.

Educational programs in home horticulture are conducted for commercial people in 44 states. The responsibilities for these programs were divided equally between state specialists and area and county agents. A registration or enrollment fee for these programs was charged in 22 states.

The respondents in 47 states thought organized Extension educational programs for commercial people should be increased in the urban areas and 36 thought these programs should be increased in the rural areas.

The respondents in 46 states said commercial people were providing service type information. In four states, fees are being charged for this service and the recommendations or information given were in general agreement with the state Extension service in 31 states.

In 25 states, there are state Extension interdisciplinary planning committees for home horticulture; 24 states do not have such a committee.

Twenty-three states have county or area planning committees, but 25 do not.

In 35 percent of the states, nonExtension people are members of state Extension planning committees, and 40 percent of the respondents reported non-Extension people on county and area committees.

Two hundred and forty-one publications, slide sets, and other educational aids were identified as having potential national or regional use.

Forty-one respondents felt a need for regional specialized workshops on home horticulture, and 19 favored national workshops.

Suggested Improvements in Home Horticulture Programs:

Helpful and unique suggestions for conducting home horticulture programs in a more effective and efficient manner include:

(1) Possibilities of regional TV programming on home gardening.
(2) Regional literature planning and preparation.
(3) Using taped messages on a multistate or regional basis.
(4) Computerized educational assistance with remote terminals at strategic points in each state.
(5) Developing a more fitting title for the program.
(6) Organizing state, area, and county interdisciplinary committees to plan Extension programs in home horticulture.
(7) Patterning home horticulture programs to the Expanded Food and Nutrition Program and its use of paraprofessionals.
(8) Developing regional workshops, stressing educational methods for Extension personnel responsible for home horticulture programs.
(9) Involving nonExtension people, such as nurserymen, landscapers, and garden club members on Extension home horticulture planning committees.

PURPOSE

The number of people interested and involved in home horticulture activities is rapidly increasing throughout the nation. This interest in horticulture is accompanied by the desire and need for information and training.

Numerous and unique Extension teaching methods and techniques are being used to present home horticulture information and programs. The purpose of this survey was to identify some of these programs and methods and bring about an exchange of ideas that will help make Extension home horticulture programs more effective and efficient.

DEFINITION

Extension Home Horticulture: For the purpose of this study, Extension Home Horticulture is defined as those programs and activities that relate to the arrangement, selection, planting, growing, and maintenance of trees, shrubs, flowers, lawns, home food gardens, and other plant materials in and/or around dwellings, including protection from and the control of plant insects and diseases and weeds.

This definition of home horticulture agreed closely with the concept of home horticulture in 48 of the 50 states and 2 territories.[2] The Eastern, Southern, and Central regions each had one or two states that did not fully agree and specified that the definition should include overwintering problems, home fruit production, and the safe use of pesticides. The intent of the definition was to include these specifics under selection, growing and maintenance, and protection programs and activities.

In practice, this definition is accepted by most Extension personnel at the county level.

Staff members at two universities believe the responsibility for making insect and disease identification or diagnosis and control recommendations should be restricted to the Entomology and Plant Pathology Departments, stating, "If the present trends toward prescription dispensing of pesticides prevails, it may eventually be illegal for horticulturists or any unlicensed person to make control recommendations."

In all states, the home horticulture audience includes more than just those people with horticultural questions or problems related to gardening. Extension personnel responsible for home horticulture programs are confronted with topics ranging from those closely related to horticulture to those with little or no relationship. These programs and activities include such diverse subjects as lawnmower safety, household insect control, housing design, and human nutrition.

REPORTING ACTIVITIES

Forty-two states differentiate between home horticulture and other horticulture work in their State Extension Management Information System, and eight states do not. Six states did not differentiate between home horticulture and commercial horticultural programs. One reason given was "horticultural crops are not an important agricultural commodity in the state."

The number of state Extension purposes for reporting state work in home horticulture ranges from only one in some states to as many as 12. Ten states identified their purposes as improving human housing and home environment. Ten states had brief purposes such as home gardens, home grounds, pest control, human nutrition, youth programs, and horticulture for the handicapped.

Separate purposes and code numbers were suggested for consumer services that are only remotely associated with home horticulture, such as household insects or rodent control. One Extension specialist said he answers over 600 letters a year of this kind, and these activities are reported under home horticulture because there is no other category for them.

WHY IS EXTENSION INVOLVED?

Fifty states have organized Extension home horticulture programs. Public or consumer demand was given by 26 respondents as the reason for conducting Extension educational home horticulture programs. Extension personnel want to meet these demands efficiently and effectively and reported that unsolicited home horticulture inquiries by telephone, mail, and office visits are continuous and increasing.

Other frequently listed reasons for conducting Extension home horticulture programs were: first, a large segment of the population participates in home horticulture activities; second, the general public is becoming more aware of the resources available through the Cooperative Extension Service; and third, the outreach potential to this audience is probably larger than any other college of agriculture endeavor. These states also recognize that planned and organized Extension programs are imperative on a group basis, rather than with individuals, for an efficient dispersion of horticultural information. (See Table 1).

Table 1. Trends for request for assistance in 21 subject matter areas included in home horticulture programs

Subject Matter Areas	Number of States Indicating An Increase in Requests for Assistance Over the Past 3 Years
1. Lawns	47
2. Plant Diseases	46
3. Plant Insects	46
4. Garden Weeds	46
5. Trees	45
6. Home Landscaping	45
7. Shrubs	44
8. Soil Management and Fertilizers	42
9. Vegetables	40
10. Annual Flowers	35
11. House Plants	35
12. Ground Covers	35
13. Fruits and Nuts	34
14. Greenhouses (Hobby)	33
15. Perennial Flowers	33
16. Structures (patios, walls, walks, etc.)	31
17. Plant Propagation	27
18. Decorative features (lighting, fountains, etc.)	21
19. Vines	20
20. Exotic Plants	16

[2] Eastern Region--Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia.
Central Region--Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.
Southern Region--Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Puerto Rico, Virgin Islands.
Western Region--Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Additional reasons frequently listed were: vegetable gardens contribute significantly to the incomes and diets of low income families; and the ecological and aesthetic values are basic to protecting or improving the quality of the environment.

Demands for assistance on home horticulture problems during the past 3 years have increased from 5 to 150 percent in 49 states and remained about the same in one state.

In the Eastern region the average increase was 51 percent, with increases ranging from 10 percent to 100 percent; for the Central region the average increase was 31 percent, with increases ranging from 15 percent to 75 percent; in the Southern region the average increase was 23 percent, with increases ranging from 10 percent to 50 percent; and the Western region had 5 to 150 percent increases, with an average of 38 percent.

Service type activities such as plant identification, plant insects and disease identification and diagnosis, and soil analysis increased during the past 3 years from 10 to 150 percent in 46 states, while four states showed no increase.

In the Eastern region, the average increase for these service type activities was 46 percent, with state increases ranging from 10 to 100 percent. The Central region average increase was 33 percent, with state increases ranging from 10 to 100 percent. The Southern region average increase was 23 percent, with state increases ranging from 10 to 50 percent. The Western region had the greatest range of increases of any of the four regions. The average increase was 48 percent, two states reported no increase in these service type activities, but one state had a 150 percent increase.

Nationally during the 1970-71 fiscal year, the Cooperative Extension Service devoted 99 state staff man-years, 30.5 area staff man-years, and 337 county staff man-years to home horticulture efforts.

In addition to the professional staff man-years, 662 paraprofessionals assisted with the home horticulture program. (See Table 2.)

Table 2. Paraprofessional man-years by regions devoted to home horticulture efforts during the 1970-71 fiscal year

Region and Number Of States	Number Employed	Man-Year Equivalents
Eastern - 12	16.5	12.0
Central - 12	2.0	1.0
Southern - 14	638.0	20.0
Western - 13	6.0	1.0

Thirty-six states said service type activities in home horticulture, such as plant identification and disease and insect identification, should be discouraged. Table 3 compares trends reported by states for fiscal years 1969-70 and 1970-71.

Table 3. Specimens or samples processed by state and area specialists for home gardeners during the 1970-71 fiscal year as compared to the 1969-70 fiscal year

Specimen OR Sample	Number Received by States 1970-71 FY	1970-71 FY Compared to 1969-70 FY Number of States		
		Increased	Decreased	Same
Plant Identification (Exotics, woody, ornamentals, etc.)	39,369	38	0	9
Plant Disease Identification	90,745	44	0	2
Plant Insect Identification	91,012	38	0	6
Weed Identification	33,403	35	1	9
Soil Analysis	99,078	29	0	11

Businesses, organizations, agencies, and societies identified that help promote and conduct Extension home horticulture programs

BUSINESSES

Airlines
Arborists
Banks
Chemical companies
Equipment dealers
Fertilizer companies
Florists
Gardening consultants
Garden supply firms
Golf courses
Greenhouse operators
Grounds maintenance
Hardware stores
Landscape architects
Media: TV and radio
Newspapers, gardening magazines
Nurseries
Oil companies
Pest control operations
Property management companies
Real estate development organizations
Seed suppliers

ORGANIZATIONS

Boy Scouts
Business and professional women's club
Cemetery associations
Chamber of Commerce
Churches
Civic clubs
Community colleges
Farm Bureau
Federal Garden Clubs
4-H
Fruit Growers Association
Garden Clubs of America
Girl Scouts
Grange
High schools
Homemakers' clubs
Libraries
National Jr. Horticultural Association
Neighborhood Improvement Association
Nurserymen's Association
Research institutes
Shade Tree Association
Vocational schools

AGENCIES

Arboreta
Botanical Gardens
Bureau of Indian Affairs
Department of Defense
Department of Natural Resources
Farmers Home Administration
Housing Authorities
Municipal Courts
State Departments of Agriculture
State Forest Service
State, County, and City Park Departments
Soil Conservation Service

SOCIETIES

American Horticultural Society
American Society of Botanical Gardens
American Society for Horticulture Science
Flower and Plant Societies
Garden Writers Association
Historical Societies
Pacific Tropical Botanical Garden
Rose Society
State Horticultural Societies

SUBJECT MATTER AREAS

Subject matter areas identified as needing moderate to extensive emphasis in the future are: organic gardening, ecology, household pest management, environmental pollution control, therapeutic use of plants, and the identification of native and poisonous plants.

AUDIENCES

The home horticulture audiences receiving Extension Service programs or assistance were identified as to income level, education level, and by group or individual contacts. Moderate to extensive increases were most frequently reported for trends in audience size. (See Table 4.)

State specialists and area or county agents in 44 states conducted educational programs in home horticulture for garden store operators, nurserymen, landscape gardeners, and other commercial people. Six respondents reported no programs for such audiences.

Table 4. Characteristics and trends in size of home horticulture audiences being reached during 1969-70-71

Characteristics of Audiences and Type of Contacts	Trends in Size of Home Horticulture Audiences — Number of States			
	Decreasing	No Change	Moderate Increase	Extensive Increase
Educational Level				
Low (less than high school)	3	17	21	5
Medium (high school)	0	2	34	10
High (college)	0	5	22	19
Income Level				
Low (below $3,000)	0	21	22	5
Medium ($3,000 to $10,000)	0	3	33	12
High (over $10,000)	0	6	24	18
Contacts by Groups of Organizations (Garden Clubs, Societies, Special Interest, etc.)	2	5	29	12
Individual Contacts (Phone calls, office calls, etc.)	0	2	10	36

PROGRAM DEVELOPMENT

In 26 of the 44 states, the CES staff initiated the educational program. The program agenda are developed most generally by the Extension specialists in horticulture, plant pathology, weed control, and entomology, and are based on the educational needs recognized during contacts with the commercial clientele.

In 17 states, the educational programs are initiated by local businessmen, interested employees, or professional organizations that request training from the CES staff.

In 6 states, committees composed of industry and Extension personnel developed the program agenda.

Seven states have permanent home horticulture groups of planning committees composed of industry and Extension personnel. These committees identify the training needs and develop the program agenda.

During the 1970-71 fiscal year, 860 programs requiring 75 Extension specialist man-years were conducted for 56,982 people. Registration fees are charged in 22 states, but no charge was made in 16 states. (See Table 5.)

Table 5. The number of states with Extension specialists involved in the planning and conducting of training or educational programs for garden store operators, nurserymen, and professional firms

Extension Specialists	Number and Percent of States	
	Number	Percent
Agronomist	33	63.5
Entomologist	47	90.4
Horticulturist	50	96.2
Plant Pathologist	46	88.5
Management	19	36.5
Marketing	20	38.5
Others--such as Weed, Soil, Landscape, Engineering, and 4-H Specialists	24	46.2

The respondents from 47 states said future emphasis of Extension programs for commercial or professional people serving home gardeners should be increased. Only 12 respondents said these programs should be decreased, and then only in rural areas.

In 46 states, garden store operators, nurserymen, and other commercial resources are providing home horticulture service type information such as plant identification, gardening advice via phone calls or in person, soil analysis, and insect, disease, and weed identification and control. In four states, fees are charged for this service, but only rarely or never in 34 states.

Thirty-one respondents consider the recommendations or information given by commercial professional firms to be in agreement with those of the state Extension Service.

PLANNING COMMITTEES AND THEIR FUNCTIONS

Twenty-five states have interdisciplinary committees to plan Extension programs in home horticulture. Thirty-three states have county or area planning committees.

Functions performed by state committees

(1) Meet bimonthly, quarterly, or as scheduled, and plan, coordinate, and provide resource people for scheduled statewide agent training meetings; plan pilot projects in methodology; and evaluate existing programs.

(2) Plan clinics for dealers selling home garden pest control products; plan and prepare publications and other educational materials.

(3) Assist in developing integrated programs such as in housing, pesticide safety, youth projects; coordinate education programs with horticultural industries.

(4) Hold statewide planning conferences on research, Extension, and teaching personnel and meet with commercial growers and producers to review the entire ornamental horticultural programs.

Functions performed by county or area committees

(1) These committees usually function as a part of the joint Extension council.

(2) Plan home horticulture programs and determine educational efforts, literature needs, new programs, teaching methods, and review manuscripts of proposed publications.

(3) Plan regional programs for garden supply dealers, nurserymen, landscape maintenance contractors, and others serving the home gardeners.

Eighteen states involve nonExtension people on Extension state planning committees for home horticulture educational programs. Twenty-one states have similar county or area committees.

NonExtension Planning Committee Members

Organization and nonExtension groups represented on state, area, and county committees:

American Institute of Architects
American Shade Tree Conference
American Society of Landscape Architects
Civic Clubs
Communications equipment companies
County planning and zoning commissions
Equipment manufacturers
Federated garden clubs
Home Demonstration Club members
Nurserymen associations
Office of Economic Opportunity
State department of conservation
State and Federal agencies, SCS, FS, FHA, ASCS, etc.
State horticultural societies
State regulatory personnel
Turf grass associations
University resource personnel

Subject matter and methodologies most frequently listed and used by states to provide various clientele with the most beneficial educational programs in home horticulture are listed below:

Suburban Clientele

Program Content	Methodology
Plant material selection	Mass media
Cultural practices	Publications and fact sheets
Insect, disease, and weed identification and control	Meetings and short courses
Proper and safe use of chemicals	
Lawn care	
Vegetable gardening	

Arizona mentioned their Master Gardener Program. Several states listed demonstrations and paraprofessionals.

Rural Clientele

Program Content	Methodology
Plant material selection	Mass media
Cultural practices	Publications and fact sheets
Insect and disease control	Meetings and clinics
Fruit and vegetable gardening	
Landscaping	

Inner City Clientele

Program Content	Methodology
Cultural practices	Individual contacts
Plant selection	Neighborhood meetings
Insect and disease control	Mass media
House plants	Demonstrations
Container gardening	
Landscaping	
Fruit and vegetable gardening	

PROGRAM EFFORTS

The percent of the total Extension home horticulture program efforts in fiscal year 1970-71 in each of the following categories of clientele:

Clientele	Percent of Home Horticulture Program Efforts With Families	
	No. of States	Range
Rural	46	3 to 98%
Urban:		
Inner City	43	2 to 45%
Suburban	45	10 to 95%

Respondents from 37 states believe some categories of home residents should be reached that are not now being reached by Extension home horticulture programs. These home residents were identified as newcomers; low income families, urban, and rural; Indians, Spanish American, and other ethnic groups; and the aged. Also, families living in rural or suburban areas receive a greater percent of the Extension home horticulture program efforts than families living in the inner city.

Suggestions were made to pattern home horticulture programs after the Expanded Food and Nutrition Program to reach these audiences and use paraprofessionals for food production and environmental improvement programs.

Two other audience categories are land developers and contractors. The suggested educational efforts for these categories would be formal and should include landscape planning, design, and environmental protection. Mass media, radio, TV, and fact sheets are also considered effective communication channels.

Newsletters:

Home horticulture newsletters are prepared in 31 states by state Extension specialists. (See Table 6.)

Table 6. Recipients of newsletters and number distributed

Recipients of Newsletters	No. of States	Total Number Distributed
County Agents	30	25,113
Nurserymen	23	43,375
Garden Store Operators	22	60,093
Turf Growers	12	28,885
Park Superintendents	12	20,765
Home Gardeners	17	816,750

The county Extension staffs in 403 counties in 31 states also prepare home horticulture newsletters. (See Table 7.)

Table 7. The number of counties by region that prepare home horticulture newsletters

Region	Number of Counties
Eastern Region	86
Central Region	136
Southern Region	118
Western Region	63

PRODUCTIVE ACTIVITIES

Indepth home horticulture workshops and seminars repeated annually and just prior to the gardening season were most often identified as the most productive activities when measured by accomplishments or changes made by participants. Other activities considered productive were use of publications (either single pages or bulletins), mass media, radio, TV, newspapers, and recorded telephone messages and answering services.

Roughly 40 percent of the states do not charge fees for Extension sponsored home horticulture events, activities, or publications.

Table 8. The number and percent of states charging for horticulture events, activities, and publications

	Events and Activities		Publications	
No. & Percent of States	YES	NO	YES	NO
Suburban	10 (19.2)	7 (71.2)	5 (9.6)	41 (78.8)
Inner City	7 (13.5)	8 (73.1)	3 (5.8)	41 (78.8)
Rural	9 (17.3)	38 (73.1)	4 (7.7)	42 (80.8)

Evaluations of home horticulture workshops and seminars are conducted in 17 states by Extension specialists to measure the accomplishments and opinions of the participants.

SALIENT FACTORS FOR SUCCESSFUL PROGRAMS

Some salient factors to keep in mind when designing home horticulture programs as mentioned by respondents are:

For Rural Clientele

A. Keep within the desires, interests, educational capabilities, and financial needs of rural families to carry out and still enhance family living without being an undue burden in future costs and maintenance.

B. Aim objectives at reducing the number of trouble-shooting calls in spring and summer, emphasize education, and avoid the trap of too many service type activities.

C. Organize a strong county planning committee and work with and through commercial advisors.

D. Involve specialists primarily with agent and leader training and resource development. The actual program should be done by the agent field staff emphasizing mass media approaches and use of lay multipliers.

E. Choose the legitimizer and establish demonstrations in combination with short courses and workshops structured to help the individual make his own decisions.

F. Know the needs and communication channels used by the community.

G. Prepare short and concise printed materials with up-to-date and well-illustrated information.

H. Identify the new and improved varieties and strains of plants available to the home gardener and the sources of supply.

I. Develop yards and gardens that combine aesthetics and utility and present subject matter that is relevant to rural landscaping.

J. Realize well-trained secretaries can handle some of the home horticulture problems brought to the Cooperative Extension office.

K. Differentiate between geographic and economic areas of the state, between ethnic groups, and be sure to consider the average age of the clientele.

L. Present slides and other educational aids representative of the farm or rural situation rather than urban environments.

M. Use timely educational materials that provide information when problems exist.

N. Organize programs to work with groups on a problem or interest oriented basis.

O. Recognize that gardening is in competition with other recreation time and interests.

P. Remember your rural audience is familiar with Extension and, therefore, demonstration type projects are effective.

Q. Use mass media communications (radio and newspapers). These are more effective in rural areas than in inner city areas. They're even more effective in suburban areas.

R. Stress minimum maintenance and dual purpose plants for both food and aesthetic value.

S. Plan programs that will increase income or make small incomes go further.

For Suburban Clientele

A. This audience may not be familiar with Extension programs, but many of their interests and problems are similar to those of rural gardeners.

B. Suburbanites may or may not be familiar with gardening terminology and localized gardening techniques. They are usually young adults with above average education and who are eager to learn.

C. They are interested in the use of plants that create privacy and are suited to limited space.

D. Suburban programs should allude to ecology, the environment, civic improvement, and the individual state's goals.

E. Horticultural agribusiness can assist in program content and areas needing extra emphasis.

F. Identify income and education level, recognize recreation and leisure patterns, and be familiar with available commercial horticulture resources and the costs associated with horticultural activities such as planting, spraying, mowing, or pruning. The suburban audience in some regions or states is stratified by educational and income levels.

G. The care of lawns, trees, and shrubs is an important topic. This audience also has high interest in learning and applying the principles of landscape design.

H. House plants are important to some members of this audience. Some of this clientele may be specialists for specific plants.

I. Many of the telephone calls, letters, and office visits are received from this audience. These people are seeking information about the factors influencing plant growth, i.e. soils, fertilizers, insects, diseases, watering, novel use of plants, exotic plant materials.

J. Suburbanites can be reached through mutual interest groups, civic or community organizations, or Extension-sponsored activities. Mass media, fact sheets, and paraprofessionals are potential methods for helping this audience.

K. Make your programs pertinent and timely. Consider followup efforts through clinics, demonstrations, tours, or additional workshops and meetings.

For Inner City Clientele

A. The suggested program must be low cost and require a minimum of maintenance.

B. This audience is generally not acquainted with the values or pleasures associated with home horticulture activities.

C. Publications and mass media have limited effectiveness.

D. The inner city has limited money, space, and equipment; generally a lower educational level; and shows minimum enthusiasm toward home horticulture.

E. This clientele is mostly interested in growing annual plants, perennial flowers, vegetable production, and pest control associated with both yard and home.

F. Their interest needs to be motivated with projects such as mini parks, growing house plants, and a basic program about "How Plants Grow." Effective and beneficial programs have been associated with window box plantings and community gardens.

G. People in the inner city are usually not familiar with Extension programs, but they will accept help.

H. Identify and develop key individuals who are neighborhood leaders. Provide special assistance such as paraprofessionals. Generally, work with small groups or one-to-one.

I. Involve the local people in establishing demonstration areas.

J. Specifically prepared, well-illustrated publications are most effective with these gardeners.

K. Solicit the support of schools, civic leaders, and commercial groups.

Program Evaluation

Twenty states involve program participants in evaluating educational accomplishments, but 32 respondents said the participants are seldom or never involved.

EDUCATIONAL AIDS AVAILABLE FROM STATES

Fifteen respondents suggested that an effort be made to prepare slide sets, films, and publications on a regional or national basis.

Nine hundred and eighty-six educational aids were listed in the survey. Two hundred forty-one of these are considered to have potential national use. The respondents considered more than 625 of these aids suited for audiences with less than a high school education, 734 for audiences with a high school education, and 665 for college educated people.

The following educational materials have potential national use for home horticultural endeavors and are available from the respective states. (Contact the publication editors for prices in quantity and for slide sets and films.)

Cooperative Extension Service, University of Arkansas, Fayetteville, Arkansas 72701

Publications

Roses, J. K. Ball, Extension Horticulturist, Circular 412, Revised June 1970.

Cooperative Extension Service, University of Delaware, Newark, Delaware 19711

Publications

Gardeners' Care of Ornamental Plants

Slide Sets

Home Propagation

Cooperative Extension Service, University of Florida, Gainesville, Florida 32601

Publications

A Florida Garden Room Addition, Extension Circular 329
Amaryllis, Extension Circular 171B
Bonsai, Extension Circular 338
Soil Reaction (pH) for Flowers, Shrubs, and Lawns, Extension Circular 352

Cooperative Extension Service, University of Idaho, Moscow, Idaho 83843

Publications

Landscape Design Course
How to Exhibit Fruits and Vegetables

Cooperative Extension Service, University of Illinois, Urbana, Illinois 61801

Publications

Vegetables for Mini Gardens
Pruning Shrubs

Cooperative Extension Service, Purdue University, Lafayette, Indiana 47907

Slide Sets with tapes and script

Pruning Ornamental Trees and Shrubs
Planting Ornamental Trees and Shrubs

Publications

Pruning Ornamental Trees and Shrubs, HO-4
Annual and Perennial Vines, HO-21
Planting Ornamental Trees and Shrubs, HO-100
Garden Chrysanthemum, HO-72-4
The Peony, HO-75-3
Dahlias, HO-103
Zinnias, HO-104
African Violets, HO-10
Terrariums, HO-13
Starting Seeds Indoors, HO-14
House Plants, HO-56
Poinsettias, HO-73
Home Gardener's Guide, HO-32
Irish Potatoes, HO-62-2
Asparagus, HO-96
Rhubarb, HO-97
New Plants by Layering, HO-1
Yard 'n' Garden Calendar for Winter, HO-90
Yard 'n' Garden Calendar for March/April, HO-91
Yard 'n' Garden Calendar for May/June, HO-92
Yard 'n' Garden Calendar for July/August, HO-93
Yard 'n' Garden Calendar for September/October, HO-94

Cooperative Extension Service, Kansas State University, Manhattan, Kansas 66502

Publications

Garden Chrysanthemum in Kansas
House Plants Their Selection and Care
Kansas Garden Guide
Landscape Development for an Urban Home
Site Planning for Home Landscape Development
4-H Horticultural Projects
Food from Horticulture
Landscaping with Horticulture
Beauty from Horticulture
Science with Horticulture

Slide Sets and Scripts

Pruning Fruit Trees
4-H Horticulture Project
Judging Horticultural Projects

Educational Aids

Landscape Workshop Handbook

Cooperative Extension Service, University of Kentucky, Lexington, Kentucky 40506

Slide Sets

Annual Flowers for Accent
Planting the Home Garden

Publications

Roadside Marketing in Kentucky

Cooperative Extension Service, University of Maine, Orono, Maine 04473

Video Taped TV Programs

Gardeners' Notebook

Publications

Landscape Planning for the Home Grounds, Bulletin 504

Cooperative Extension Service, University of Maryland, College Park, Maryland 20742

Slide Tapes

Planting Ornamental Trees and Shrubs (22 min.)
Pruning Ornamental Trees and Shrubs (30 min.)
Growing Annual Flowers (16 min.)

Cooperative Extension Service, University of Massachusetts, Amherst, Massachusetts 01002

Publications

Community Beautification in Massachusetts
Lawn Construction and Early Maintenance
Fall Lawn Renovation

Cooperative Extension Service, Michigan State University, East Lansing, Michigan 48823

Publications

Landscape Planning for Residential Properties, E-549
Landscape Paving for Home Grounds, E-691
Outdoor Lighting for Home Grounds, E-494
Proper Care of Cut Flowers, E-558
Landscape Planning for Rural Homes, Arc. E-1

Cooperative Extension Service, University of Minnesota, St. Paul, Minnesota 55101

Publications

Strawberry Diseases
Cedar-Apple Rust
Oak Wilt and Its Control
Raspberry Diseases
Controlling Disease
Diseases of Peony
Gladiolus Diseases
Tree Damage Caused by Nonliving Agents
Parasitic Diseases of Tomatoes
Nonparasitic Diseases of Tomatoes
Fungicides for Farm and Garden Use
Lice Blight
Sparkler Flowering Crab-1969 June
The Gardener - Planters in Sunny Places
The Gardener - A Small Vegetable Garden
The Gardener - Planters in Shady Places
The Gardener - Flowers for a Sunny Bed
Freezing Foods for Home Use
Care of House Plants

Cooperative Extension Service, Montana State University, Bozeman, Montana 59715

Publications

Trees and Shrubs for Montana

Cooperative Extension Service, University of Nevada, Reno, Nevada 89507

Publications

Transplanting Native Wild Trees and Shrubs
Plant Breeding in the Home

Cooperative Extension Service, University of New Jersey (Rutgers), New Brunswick, New Jersey 08903

Publications

What's Wrong with My Tree

Slide Sets

Pollution Damage to Plants
Environment, Pesticides, and People
Propagating House Plants

Film

Foliage Plants for Interiors

Cooperative Extension Service, New Mexico State University, Box 3AE, Las Cruces, New Mexico 88001

Publications

Home Landscaping, Circular 398
Plants in the Home, Circular 309

Slide Sets

Native New Mexico Plants (62 slides)
Rockscaping, Set No. 9 (54 slides)

Slide Sets (Plant Pathology)

Controlling Diseases of:

Home Plantings
Peach
Apple
Stone Fruits
Chile
Potato
Tomato
Cucumbers
Turf
Strawberries and Cane Fruits
Onion
Miscellaneous Vegetables

Cooperative Extension Service, North Carolina State University, Raleigh, North Carolina 27607

Slide Sets

Insect Pests of Home Garden
Insects on Ornamentals

Cooperative Extension Service, North Dakota State University, University Station, Fargo, North Dakota 58102

Publications

Ornamental Trees and Shrubs, A-389
Planting Trees and Shrubs, A-531
Pruning Shrubs, A-515
Tulips, A-119
Pruning Trees, A-364
Care of Gift Plants, A-364
Ground Covers, A-448
Landscape Your Home, A-338
Lilies for North Dakota, A-376

Cooperative Extension Service, Ohio State University, 2120 Fyffe Road, Columbus, Ohio 43210

Publications

Mulches for the Home Grounds
Plan and Plant for Blue Ribbons (The Vegetable Exhibitors Handbook SB)
Planting Trees and Shrubs, L-148
Plant Disease Control in the Yard, Bulletin 434

Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma 74074

Fact Sheets

Mulching Vegetable Garden Soils, 6005
Commercial Fertilizer Use in Home Gardens, 6006
Improving Garden Soil Fertility, 6007
Fall Gardening, 6009
Terrariums, 4-H PI 1351

Cooperative Extension Service, Pennsylvania State University, University Park, Pennsylvania 16802

Publications

Planning Your Flower Show, C-515
Propagating House Plants, C-533
Care of Holiday Plants, C-539
Changing the Grade Level Around Trees, S-123
Seven Steps to a More Beautiful Home Ground, S-124
Planting Trees, S-125
Landscaping the Home Grounds ($2)

Cooperative Extension Service, University of Rhode Island, Kingston, Rhode Island 02881

Publications

Problems -- Shade and Ornamental Trees
Lawn Planning and Construction

Cooperative Extension Service, Clemson University, Clemson, South Carolina 29631

Circulars

Insects and Diseases of Ornamentals
Care of Ornamentals
Christmas Decorations for the Home
Your Home Vegetable Garden

Slide Sets

Insects and Diseases of Ornamentals
Insects and Diseases of Vegetables
Insects and Diseases of Fruits
Demonstrational Material
Grafting Plants
What Is a Seed

Cooperative Extension Service, South Dakota State University, Brookings, South Dakota 57006

Publications

For Better Health-Home Grown Fruit and Vegetables

Cooperative Extension Service, University of Tennessee, Box 1071, Knoxville, Tennessee 37901

Publications

The Flowering Dogwood

Cooperative Extension Service, Texas A&M University, College Station, Texas 77843

Publications

Roses: How to Plant
Under the Spreading Shade Tree (Tree and Shrub Fertilization)
Shade Tree Borers
Aloes
Air Layering for Difficult to Root Plants

Cooperative Extension Service, University of Vermont, Burlington, Vermont 05401

Publications

Pruning Home Garden Plants
Drying Flowers

Cooperative Extension Service, Virginia Polytechnic Institute, Blacksburg, Virginia 24061

Publications

Planning and Presenting a Garden Club Talk
Horticulture Programs for Garden Clubs
Dahlia Culture
Ornamental Gourds
Exhibiting and Judging Flowers
Protecting and Repairing Trees During Construction
Pruning Ornamental Trees
Fertilizing and Mulching Shrubs and Trees
Pruning Shrubs

Cooperative Extension Service, Washington State University, Pullman, Washington 99613

Publications

Maladies or Ornamental Plants

Cooperative Extension Service, University of Wisconsin, Madison, Wisconsin 53706

Publications

Modern Mouse Control, FS 45
Birch Leaf Miner, FS 33
Vegetable Insects, FS 24
Tree and Shrub Pests, FS 22
Plant Pesticides Measurement, FS 15
Shelves, Houses, Feeders for Birds and Squirrels, SC 146
Selecting Flowering Crabapples, SC 139
Insect Control in the Home Vegetable Garden, SC 141
Herbs, SC 132
Ground Covers for Wisconsin, SC 130
Lawn Weeds, SC 118
African Violets, C 437
Facts about Nuts, FS 65
Apple Storage, FS 64
Fruit Plant Pollination, FS 57
Dwarf Apple Trees, FS 51
Fruit Plant Nutrition, FS 47
Apple Varieties, FS 27
Pear Production, FS 18
Everbearing Strawberry Production, FS 17
Junebearing Strawberry Variety Suggestions, FS 17
Wisconsin Raspberries, C 515
Strawberries for Home Gardens, C 512
Understanding Pesticide Labels, SC 150
Vegetable Gardens, SC 117
Guide for Home Landscaping, SC 98
Shade Trees, Pruning and Care, C 608
Deciduous Shrubs, Pruning and Care, C 590
Ranch Style Purple Martin House, C 581
Landscape Plants that Attract Birds, C 514
Growing Glads in Wisconsin, C 543
Mums for Fall Beauty, C 532
Flowering Potted Plants, C 511
Spring Bulbs, C 504

Cooperative Extension Service, University of Wyoming, University Station, Box 3354, Laramie, Wyoming 82070

Publications

Home Landscaping Kits

Slide Sets

Organic Gardening
The Art of Homescaping
Pruning Trees
Physiological Tree Diseases

16 mm movie

Deck the Halls (How to Make Xmas Decorations with Evergreen Boughs)

WORKSHOPS - PROFESSIONAL IMPROVEMENT

Twenty-six respondents said there is no need for a national workshop, but 41 respondents said there should be regional workshops. (See Table 9.)

Table 9. The subject matter disciplines that should be represented by participants at such interdisciplinary workshops

Disciplines	Participation at Workshops Number and Percent of States			
	YES	%	NO	%
Agronomy (other than agronomic crops specialist)	20	(38.5)	23	(44.2)
Entomology	36	(69.2)	7	(13.5)
Horticulture	42	(80.8)	1	(1.9)
Plant Pathology	36	(69.2)	7	(13.5)
Soils	10	(19.2)	10	(19.2)
Fertilizers	33	(63.5)	10	(19.2)
Turf	40	(76.9)	3	(5.8)
Weeds	37	(71.2)	6	(11.5)
Marketing	18	(34.6)	22	(42.3)

Eighty percent of the workshop agenda topics suggested for regional or national consideration were related to Extension teaching methods.

These respondents also suggested methodology workshops for state and county Extension staff members on effective techniques for teaching home horticulture.

Thirty-three respondents (63 percent) expressed the need to develop indepth graduate school credit courses for Extension personnel involved in home horticulture.

The priority areas of concern that should be included in graduate credit courses are:

Community planning and landscaping
Gardening--flowers, fruits, and vegetables
Landscaping
News writing, public speaking, and communication techniques
Pest management and control--insects, diseases, and weeds
Preparing visual aids
Psychological and cultural aesthetics and the therapeutic aspects of home horticulture
Sociology of specific groups
Teaching methods
Turf management
Youth programs, including horticulture in schools.

Questions are presented here in their complete form, but answering spaces have been condensed and questionnaire format has been modified to save space in this publication.

APPENDIXES

THE MINNESOTA SURVEY QUESTIONNAIRES

Appendix A

Mail Questionnaire sent to recipients of revised Extension Bulletin 366, The Home Lawn:

AGRICULTURAL EXTENSION SERVICE
UNIVERSITY OF MINNESOTA

WILL YOU HELP US continue to try to make our publications as useful to you as possible? Please answer the questions below and drop this card in the mail. No stamp is needed.

1. How did you find out about the new extension bulletin enclosed? _____
2. Have you had a chance to read it yet?
   a. __not yet; b. __some of it; c. __all of it.
3. If you have read some or all of it ....
   3a. Was it easy to understand?
   a. __very easy; b. __rather easy; c. __not very easy
   3b. Did it contain what you wanted to know?
   a. __yes; b. __no. If no, what was missing?
   _____
4. How useful do you think the bulletin will be to you? a. __very useful; b. __of some use; c. __not very useful.
5. What do you intend to do with the enclosed bulletin? a. __file for future reference; b. __throw it away; c. __other (please specify)
   _____
6. Have you requested any lawn or garden publications from the University before?
   a. __yes; b. __no.
7. Have you previously called or written the University for information about lawn or garden problems? a. __yes; b. __no.
8. Do you live on a farm, or in a town, suburb, or city? a. __farm; b. __town; c. __suburb; d. __central city.
9. Do you own or rent your home? a. __own; b. __rent.
10. Your occupation? _____
11. Last year of school completed? _____

THANK YOU FOR YOUR COOPERATION

Sincerely

Vernon A. Keel
Extension Information Spec.

Appendix B

PERSONAL INTERVIEW QUESTIONNAIRE

(This questionnaire was used for indepth interviews with the random sample of home gardeners in the Twin Cities metropolitan area. Essentially the same questionnaire was used for indepth, personal interviews with a sample of individuals who had phoned the University of Minnesota Horticultural Information Center and a sample of metro area members of the Minnesota State Horticultural Society)

Case No. _____
Cluster No._____

UNIVERSITY OF MINNESOTA
AGRICULTURAL EXTENSION SERVICE
HORTICULTURAL COMMUNICATIONS SURVEY

Hello...My name is _____. I'm an interviewer for the University of Minnesota. I'm working with some people in the University's Agricultural Extension Service on a study of where and how people in the Twin Cities get their information on certain subjects related to work around the home and yard. We're also interested in the kinds of such information people want and need. Your home has been selected to be included in a sample of the Twin Cities area. I'd like to talk to the person who is mainly responsible for the plant life in and around your home. That is, the person who is mainly in charge of the flowers, plants, lawn, trees, and shrubs.

APPOINTMENT INFORMATION

Name of person to be interviewed _____
Address:_____
Phone: ____ Office: ___
Day/Hour of appointment or times when usually home: _____

DATE OF INTERVIEW:
Original Contact:_____
1st Call Back:_____
2nd Call Back:_____

REASON FOR NO INTERVIEW
(Be specific)
_____
_____

Time interview begins _____

1. Do you ever listen to radio?
   a.__yes
   b.__no (IF NO, go to 13)

2. About how much time during the week do you spend actually listening to the radio? __hours per week

3. Which one radio station do you usually listen to most? ____(ONLY ONE)

4. Do you ever listen to KUOM radio, 770 on the dial? That's the University station.
   a.__yes
   b.__no (IF NO, go to 10)

5. How often do you listen to KUOM? Do you listen to it almost every day; several days a week; about once a week; or less than once a week?
   a.__almost every day
   b.__several days a week
   c.__about once a week
   d.__less than once a week

6. Do you ever listen to the "University Farm Hour," broadcast weekdays at 12:30 noon on KUOM?
   a.__yes
   b.__no (IF NO, go to 8)

7. Do you listen to it almost every day; several days a week; about once a week; or less than once a week?
   a.__almost every day
   b.__several days a week
   c.__about once a week
   d.__less than once a week

8. How about Jo Nelson's program, "Highlights in Homemaking?" It's on KUOM at 11 o'clock weekday mornings. Do you ever listen to it?
   a.__yes
   b.__no (IF NO, go to 10)

9. Do you listen to it almost every day; several days a week; about once a week; or less than once a week?
a.__almost every day
b.__several days a week
c.__about once a week
d.__less than once a week

10. If you were to hear about a new series of radio programs that dealt with flowers, plants, gardening, or yard care, how likely would you be to listen to it, if it were on at a convenient time? Very likely, probably, not very likely, or not at all likely to listen to it.
a.__very likely
b.__probably
c.__not very likely
d.__not at all likely (IF NOT AT ALL, go to 13)

11. If such a program were broadcast and you were to listen to it, would you be more likely to listen to it if it were broadcast on weekends or weekdays?
a.__weekends
b.__weekdays
c.__makes no difference

12. Would you be more likely to listen to it if it were on in the morning, during the noon hour, in the afternoon, or in the evening?
a.__morning
b.__noon hour
c.__afternoon
d.__evening
e.__makes no difference

13. How about television...do you have a television set in working order in your home?
a.__yes
b.__no (IF NO, go to 25)

14. About how many hours a <u>week</u> do you spend actually watching television?
__hours per <u>week</u>

15. Do you ever watch the program called "Town and Country?" It's broadcast at 9:30 Thursday evenings on Channel 2, and again at 9:30 Saturday mornings on WTCN, Channel 11.
a.__yes
b.__no (IF NO, go to 18)

16. Which channel do you watch it on? Channel 2 on Thursdays or Channel 11 Saturdays?
a.__Channel 2, Thursdays
b.__Channel 11, Saturdays
c.__both Channel 2 and 11

17. Do you watch "Town and Country" almost every week; about once or twice a month; or less than once a month?
a.__almost every week
b.__about once or twice a month
c.__less than once a month

18. Do you ever watch the program called "Yard and Garden?" It's broadcast at 9 o'clock Thursday evenings on Channel 2, and again at 9 o'clock Saturday mornings on WTCN, Channel 11.
a.__yes
b.__no (IF NO, go to 21)

19. Do you watch it on Channel 2 on Thursdays or on Channel 11 on Saturday mornings?
a.__Channel 2, Thursdays
b.__Channel 11, Saturdays
c.__Channel 2 and 11

20. Do you watch "Yard and Garden" almost every week; once or twice a month; or less than once a month?
a.__almost every week
b.__once or twice a month
c.__less than once a month

21. How often do you watch either KTCA, Channel 2, or KTCI, Channel 17? Almost every day; several days a week; about once a week; less than once a week; or never.
a.__almost every day
b.__several days a week
c.__about once a week
d.__less than once a week
e.__never

22. If you were to hear about a new series of television programs that dealt with flowers, plants, gardening,or yard care, how likely would you be to watch it, if it were broadcast at a convenient time? Very likely, probably, not very likely, or not at all likely to watch.
a.__very likely
b.__probably
c.__not very likely
d.__not at all likely to watch

23. If such a program were broadcast, and you were to watch it, would you be more likely to watch it if it were on weekends or weekdays?
a.__weekends
b.__weekdays
c.__makes no difference

24. Would you be more likely to watch it in the morning, during the noon hour, in the afternoon, or in the evening?
a.__morning
b.__noon hour
c.__afternoon
d.__evening
e.__makes no difference

25. How about daily newspapers....Are there any <u>daily</u> newspapers that you read every day, or at least every other day?
a.__yes
b.__no (IF NO, go to 27)

26. What papers are they? (RECORD <u>COMPLETE</u> NAME)

	HOW THOROUGH:		
	very	somewhat	not very
_____	____	____	____

INTERVIEWER: for each paper named ask:

26a. In general, how thoroughly do you usually read the (NAME PAPER)? Very thoroughly, somewhat thoroughly, or not very thoroughly. (RECORD ABOVE)

27. Now, how about <u>Sunday</u> newspapers....Do you read any <u>Sunday</u> papers every week, or at least every other week?
a.__yes
b.__no (IF NO, go to 31)

28. What papers are they? (RECORD COMPLETE NAME)

	HOW THOROUGH:		
	very	somewhat	not very
_____	___	___	___

INTERVIEWER: for each paper named ask:

28a. In general, how thoroughly do you usually read the (NAME PAPER)? Very thoroughly, somewhat thoroughly, or not very thoroughly. (RECORD ABOVE)

29. (IF MINNEAPOLIS SUNDAY TRIBUNE IS MENTIONED, ASK:)

29a. Do you ever read the Home and Recreation Section of the Sunday Tribune?
a.__yes
b.__no (IF NO, go to 30)

29b. Do you read this section almost every week; once or twice a month; or less than once a month?
a.__almost every week
b.__once or twice a month
c.__less than once a month

29c. Do you ever read the special yard and garden column in this section? It's written by Leon C. Snyder.
a.__yes
b.__no (IF NO, go to 30)

29d. How often do you read this column? Almost every week; once or twice a month; or less than once a month?
a.__almost every week
b.__once or twice a month
c.__less than once a month

30. (IF ST. PAUL SUNDAY PIONEER PRESS MENTIONED, ASK:)

30a. Do you ever read the Living and Leisure Section of the Sunday Pioneer Press?
a.__yes
b.__no (IF NO, go to 31)

30b. Do you read this section almost every week; once or twice a month; or less than once a month?
a.__almost every week
b.__once or twice a month
c.__less than once a month

30c. Do you ever read the special yard and garden column in this section? It's written by Professor R. A. Phillips.
a.__yes
b.__no (IF NO, go to 31)

30d. How often do you read this column? Almost every week; once or twice a month; or less than once a month?
a.__almost every week
b.__once or twice a month
c.__less than once a month

31. As you probably know, there are a number of community weekly newspapers that are published in the Twin Cities area. Do you read any of them every week, or at least every other week?
a.__yes
b.__no (IF NO, go to 33)

32. What papers are they? (RECORD COMPLETE NAME)

	HOW THOROUGH:		
	very	somewhat	not very
_____	___	___	___

INTERVIEWER: for each paper named ask:

32a. In general, how thoroughly do you usually read the (NAME PAPER)? Very thoroughly, somewhat thoroughly, or not very thoroughly. (RECORD ABOVE)

33. How about magazines....Are there any magazines that you read regularly; that is, every issue, or at least every other issue?
a.__yes
b.__no (IF NO, go to 35)

34. What are the names of these magazines? (RECORD COMPLETE NAME)

	HOW THOROUGH:		
	very	somewhat	not very
_____	___	___	___

INTERVIEWER: for each magazine named ask:

34a. In general, how thoroughly do you usually read the (NAME MAGAZINE)? Very thoroughly, somewhat thoroughly, or not very thoroughly. (RECORD ABOVE)

35. If you were to notice in a newspaper or magazine, an article that dealt with flowers, plants, gardening, or yard care, how likely would you be to read it? Very likely, probably, not very likely, or not at all likely to read it.
a.__very likely
b.__probably
c.__not very likely
d.__not at all likely

36. How about books....Do you read books frequently, occasionally, hardly ever, or never?
a.__frequently
b.__occasionally
c.__hardly ever
d.__never (IF NEVER, go to 38)

37. During the past month, about how many books have you read?
a.__three or more
b.__two
c.__one
d.__none

38. Do you have any books in your home that deal with flowers, plants, gardening, lawn care, or the like?
a.__yes (What are they?_____)
b.__no

39. Do you ever file or save information you come across about flowers, plants, gardening, or yard care?
a.__yes
b.__no

IF YES TO EITHER 38 or 39, ASK:

39a. How many times have you referred back to any of these books or other information during the past month: several times; once or twice; or not at all?
a.__several times
b.__once or twice
c.__not at all (IF NOT AT ALL, go to 40)

39b. Do you recall what book or reference you referred back to and why?

40. As you know, people vary quite a bit in what they're interested in. Consider the topic of flowers and indoor plants. How interested are you in this topic? Very interested, somewhat interested; not very interested; or not interested at all?
a.__very interested
b.__somewhat interested
c.__not very interested
d.__not interested at all

41. What about lawns and lawn care. How interested are you in this topic? (read categories to respondent)
a.__very interested
b.__somewhat interested
c.__not very interested
d.__not interested at all

42. Consider trees and shrubs. How interested are you in this topic? (read categories)
a.__very interested
b.__somewhat interested
c.__not very interested
d.__not interested at all

43. How about raising vegetables. How interested are you in the topic of vegetables and vegetable gardening? (read categories)
a.__very interested
b.__somewhat interested
c.__not very interested
d.__not interested at all

If respondent HAS flowers, or yard, or garden, or if he said he does, TURN TO QUESTIONS 45 through 77. Otherwise ask:

44. Let's see...you said no one in your household has any flowers, or plants, or a lawn, or trees, or shrubs to take care of, right?

IF RESPONDENT NOW SAYS HE DOES, GO TO QUESTIONS 45 through 77. OTHERWISE ASK:

44a. Have you had any flowers, plants, or a yard, or garden to take care of during the past two or three years?
a.__yes
b.__no (IF NO, go to 78)

44b. What were you raising or taking care of during the past few years? Flowers, a yard, garden, or what?

44c. Who was mainly in charge of taking care of the (flowers, yard, garden, or whatever respondent named)? (BE SPECIFIC. IF MORE THAN ONE THING RAISED, WHO WAS IN CHARGE OF WHAT?)

44d. Why do you no longer have any (flowers, yard, garden, etc.) to take care of? (PROBE)

SKIP QUESTIONS 45 THROUGH 77, GO TO 78

45. Do you, or does anyone in your home, have any flowers or indoor plants?
a.__yes (IF YES, GO TO 46)
b.__no

IF NO, ASK:

45a. Have you had any flowers or indoor plants during the past two or three years?
a.__yes
b.__no (IF NO, go to 52)

45b. Who mainly took care of them? you alone, you and someone else, or someone else?
a.__self
b.__self & other→(Specify "other")_____
c.__other→

45c. Why do you no longer have flowers or plants?

GO TO 52!

46. Who is mainly in charge of them? You alone, you and someone else, or someone else?
a.__self
b.__self & other→ (Specify "other")_____
c.__other→

IF OTHER ONLY, GO TO 52

47. About how many years have you been raising flowers or plants? _____years

48. On a usual week during this time of year, about how many hours a week do you spend working with your flowers or plants? ____hours per week

49. Considering the people in your neighborhood, do you spend about as much time, more time, or less time than they do working with flowers and plants?
a.__more
b.__less
c.__about the same
d.__don't know

50. How much do you enjoy working with your flowers or plants? Very much, some, not very much, or not at all?
a.__very much
b.__some
c.__not very much
d.__not at all

51. If you were asked to explain, in a few words, why you raise flowers and indoor plants, what would you say? (PROBE)

52. Do you or does anyone in your home have a lawn, or trees and shrubs to take care of?
a.__yes (IF YES, go to 53)
b.__no

IF NO, ASK:

52a. Did you have a lawn, or trees, or shrubs to take care of during the past two or three years?
a.__yes
b.__no (IF NO, go to 60)

52b. Who mainly took care of the yard? You alone, you and someone else, or someone else?
a.__self
b.__self & other---→ (Specify "other")_____
c.__other---------┘

52c. What's the main reason you no longer have a lawn, or trees and shrubs to take care of?

GO TO 60!

53. Who mainly takes care of your yard? You alone, you and someone else, or someone else?
a.__self
b.__self & other---→ (Specify "other")_____
c.__other---------┘

IF OTHER ONLY, go to 60

54. About how many years have you had a lawn, or trees and shrubs to take care of? _____years

55. On a usual week during the summer, about how many hours a week do you spend working on your lawn and with your trees and shrubs? _____hours per week

56. Considering the people in your neighborhood, do you spend about as much time, more time, or less time than they do working in the yard?
a.__more
b.__less
c.__about the same
d.__don't know

57. Generally speaking, how much emphasis do the people in your neighborhood put on having an attractive, well-kept yard? Very much, some, not very much, or no emphasis at all.
a.__very much
b.__some
c.__not very much
d.__none

58. How much do you enjoy working on your yard: Very much, some, not very much, or not at all?
a.__very much
b.__some
c.__not very much
d.__not at all

59. If you were asked to explain, in a few words, why you work in your yard, what would you say? (PROBE)

60. Do you or does anyone in your home raise vegetables?
a.__yes (IF YES, go to 61)
b.__no

IF NO, ASK:

60a. Did you raise any vegetables during the past two or three years?
a.__yes
b.__no (IF NO, go to 67)

60b. Who mainly took care of the vegetables? You alone, you and someone else, or someone else?
a.__self
b.__self & other---→ (Specify "other")_____
c.__other---------┘

60c. Why did you stop raising vegetables?

GO TO 67!

61. Who mainly takes care of them? You alone, you and someone else, or someone else?
a.__self
b.__self & other---→ (Specify "other") _____
c.__other---------┘

IF OTHER ONLY, GO TO 67

62. About how many years have you been raising any vegetables? _____years

63. On a usual week during the summer, about how many hours a week do you spend on your vegetables?
_____hours per week

64. Considering the people in your neighborhood, do you spend about as much time, more time, or less time taking care of your vegetables?
a.__more
b.__less
c.__about the same
d.__don't know

65. How much do you enjoy raising vegetables? Very much, some, not very much, or not at all.
a.__very much
b.__some
c.__not very much
d.__not at all

66. If you were asked to explain, in a few words, why you raise vegetables, what would you say? (PROBE)

67. When you have a problem or a question about your flowers, or plants, or your yard, or garden, where do you generally go for information?

68. When you have such a problem or question, do you usually take the first good advice you can get, or do you try to get several opinions before you decide what to do?
a.__first advice I can get
b.__get several opinions

69. Do you generally discuss such problems or questions with people you know before you decide how to handle it?
a.__yes
b.__no (IF NO, go to 72)

70. Are these people members of your immediate family, relatives, neighbors, friends outside the neighborhood, people at work, or others? (respondent can choose more than one)
a.__immediate family
b.__relatives
c.__neighbors
d.__friends outside the neighborhood
e.__people at work
f.__others (specify)_____

71. How important are these people's opinions to you when you have to decide how to handle a problem or make some other decision about your flowers, yard, or the like? Very important, somewhat, not very, or not at all important?
a.__very important
b.__somewhat important
c.__not very important
d.__not at all important

72. During the past week or two, have you sought any advice or information about raising or taking care of flowers, plants, your yard, or garden?
a.__yes
b.__no (IF NO, go to 76)

73. What kind of advice or information were you looking for? (PROBE)

74. Where did you go to get the information or advice you needed? (BE SPECIFIC)

75. Did you consult this source(s) mainly because it was handy, or because you thought you could get good advice?
a.__it was handy
b.__good advice

76. Considering the sources of information listed on Card A (HAND RESPONDENT CARD A), which one would you say is the best single source of information about flowers, plants, lawns, or gardening topics? ...that is, the source that you would have most confidence in. (CIRCLE ONLY ONE) (See page 78, col. 2)

1 2 3 4 5 6 7 8 9 10 11 12 13(Specify)_____

77. Which one would you have the least confidence in? (CIRCLE ONLY ONE)

1 2 3 4 5 6 7 8 9 10 11 12 13(Specify)_____

CONTINUED ON NEXT PAGE!

78. During the past week or two has anyone asked you for your advice or opinion about the care of flowers, plants, gardening, yard care, or the like?
a.__yes
b.__no (IF NO, go to 82)

79. Was it a member of your family, a relative, a neighbor, a friend outside the neighborhood, someone you work with, or some other friend? (MORE THAN ONE POSSIBLE)
a.__immediate family
b.__relative
c.__neighbor
d.__friend outside the neighborhood
e.__someone at work
f.__other (specify)_____
g.__don't remember

80. Did you happen to offer this person(s) advice in the normal flow of conversation or did he specifically ask you for the advice?
a.__offered in conversation
b.__he asked
c.__don't remember

81. Do you remember specifically what he/they wanted to know about?
a.__no
b.__yes (PROBE)

82. About how many persons look to you for opinions or advice on the care of flowers, plants, gardening, the yard, and so on?
a.__no one
b.__1 to 3 persons
c.__4 or more

83. Compared with most people you know...are you more likely or less likely to be asked to give opinions or advice on lawns, shrubs, flowers, or related topics?
a.__more likely
b.__less likely
c.__about the same
d.__don't know

84. Now I'd like to read you a few statements. Would you listen to each statement and tell me whether you think it is true or whether it is false. Some of these you may not know for sure, but try to answer all of them as best you can. (CIRCLE "T" FOR TRUE AND "F" FOR FALSE. If respondent insists he doesn't know, circle "DK")

T F DK a. Fir trees growing in Minnesota include spruce, pine, and cedar.

T F DK b. Silver Maple, willows, and poplars will grow in wet or poorly drained soils.

T F DK c. Hedge pruning should begin after the hedge plants have reached the desired height.

T F DK d. Golden Mockorange is one of the most popular yellow-leaved plants sold in Minnesota retail nurseries.

T F DK e. Chinese Elms make easily-maintained hedges in the Twin Cities area.

T F DK f. Pansies bloom best in midsummer's hot weather.

T F DK g. Although some fertilizer is good for dwarf marigolds and portulaca, too much nitrogen makes for lush leaves and little bloom.

T F DK h. Christmas Cactus will not bloom if it is grown in rooms where the night temperature is above 70 degrees.

T F DK i. The soil in which house plants are growing should be kept constantly wet.

T F DK j. Gardenias, dwarf lemons, and camellias are easy to grow indoors in Minnesota.

85. Before this interview began, had you ever heard of either the Minnesota Agricultural Extension Service, or the County Extension Office or the county agent or home extension agent?
a.__yes
b.__no

86. How might you expect that the Agricultural Extension Service could be of any help to you...either through its state office at the University or through its county extension offices? (PROBE)

87. Are there any other ways you think the Agricultural Extension Service might be of help to you?

88. Have you ever contacted a county agent's office for any reason?
a.__yes (Which county?_____)
b.__no (IF NO, go to 92)

89. About how often do you contact this county Extension office? At least once a month, several times a year, or about once a year or less.
a.__at least once a month
b.__several times a year
c.__about once a year or less

90. What are some of the reasons you contact the county Extension office? That is, what kinds of information are you generally looking for?

91. Did you contact a county Extension office during the past month?
a.__yes
b.__no (IF NO, go to 92)

IF YES, ASK:

91a. How many times have you contacted the county Extension office in the past month? ___times

91b. Was this by phone, mail, or in person? (MORE THAN ONE POSSIBLE)
a.__phone
b.__mail
c.__in person

91c. What was the reason(s) you contacted the county Extension office? (PROBE)

91d. What was your general impression of the people you contacted? Were they helpful or not very helpful?
a.__helpful
b.__not very helpful
c.__no opinion

91e. Were they friendly or not very friendly?
a.__friendly
b.__not very friendly
c.__no opinion

91f. Were they easy to reach or not very easy to reach?
a.__easy to reach
b.__not very easy to reach
c.__no opinion

92. Have you ever contacted the University or the Agricultural Extension Service at the University for any information?
a.__yes
b.__no (IF NO, go to 96)

93. About how often do you contact the University for information? At least once a month, several times a year, or about once a year or less?
a.__at least once a month
b.__several times a year
c.__about once a year or less

94. What are some of the reasons you contact the University? That is, what kinds of information are you generally looking for?

95. Have you contacted the University or the Agricultural Extension Service at the University during the past month?
a.__yes
b.__no (IF NO, go to 96)

IF YES, ASK:

95a. How many times during the past month have you contacted the University? _____times

95b. Was this by phone, mail, or in person? (MORE THAN ONE POSSIBLE)
a.__phone
b.__mail
c.__in person

95c. What was the reason(s) you contacted the University? (PROBE)

95d. What was your general impression of the people you contacted? Were they helpful or not very helpful?
a.__helpful
b.__not very helpful
c.__no opinion

95e. Were they friendly or not very friendly?
a.__friendly
b.__not very friendly
c.__no opinion

95f. Were they easy to reach or not very easy to reach?
a.__easy to reach
b.__not very easy to reach
c.__no opinion

96. Have you ever seen or read any publications put out by the University Agricultural Extension Service?
a.__seen
b.__read
c.__seen & read
d.__no (IF NO, go to 102)

97. During the past month, did you request any publications from the University Agricultural Extension Service, either through your county agent, home agent or some Extension department at the University?
a.__yes
b.__no (IF NO, go to 102)

98. Do you recall the title(s) or subjects(s) of these publications?

99. Do you recall how you found out about these publications? (PROBE)

100. How useful was/were this/these publication(s) to you? Very useful, of some use, not very useful, or not at all useful?
a.__very useful
b.__of some use
c.__not very useful
d.__not at all useful

101. Was it (were they) very easy to understand, rather easy to understand, or not very easy to understand?
a.__very easy
b.__rather easy
c.__not very easy

102. During the past year, have you attended any courses or special classes, or workshops, or lectures or meetings having anything to do with plants, flowers, gardening, or yard care?
a.__yes
b.__no (IF NO, go to 104)

103. What were these courses about and where did you attend them?

What about?_____ Where?_____

104. If any courses, special classes, or the like having to do with plants, flowers, gardening, or yard care were offered in your area, how interested would you be in participating in them, provided you could work it into your schedule? Very interested, somewhat interested, or not at all interested?
a.__very interested
b.__somewhat interested
c.__not at all interested

105. People differ quite a bit in the number and kinds of groups they belong to. On this card (HAND RESPONDENT CARD B) is a list of various kinds of groups. Would you look the list over and tell me how many of what kinds of groups you presently belong to. I'd also like to know how many of these groups you are now an officer in. (BE SURE TO RECORD NUMBER OF EACH TYPE OF GROUP AND NUMBER OF GROUPS PERSON IS OFFICER IN)

	NUMBER	OFFICER
1. Informal clubs or groups, like bridge clubs, poker clubs, or sewing circles	____	____
2. Women's clubs or groups	____	____
3. PTA or other formal school-related groups	____	____
4. Sports teams, like bowling or baseball leagues	____	____
5. Sportsman's clubs	____	____
6. Church-connected groups, like a church men's club or ladies society	____	____
7. Lodges or fraternal organizations, such as the Masons, Knights of Columbus, Elks, Eastern Star, American Legion, VFW, fraternities or sororities	____	____
8. Business or professional groups, including Chamber of Commerce	____	____
9. Civic groups such as Lions, Rotary, Kiwanis, Citizen's League	____	____
10. Groups concerned with civil rights or civil liberties	____	____
11. Political action groups, including party or ward clubs	____	____
12. Conservation or environmental groups, like the Audubon Society, Sierra Club, MECCA, and the like	____	____

13. Mark here if no groups at all. (GO TO 110)

106. Are there any groups you belong to that aren't included in the list on Card B?
a.__yes
b.__no (IF NO, go to 107)

106a. What are they, (name them) and are you an officer?

	Officer
_____	____

107. Do any of the groups you belong to have anything at all to do with gardening, yard care, flowers, plants, or trees?
a.__yes
b.__no (IF NO, go to 110)

108. What are they? (name them) And are you an officer? (PUT COMPLETE NAME & CHECK IF AN OFFICER)

	Officer
_____	____

109. Generally speaking, of the groups you just mentioned, are you more active in the group than the other members, about the same, or less active than they are?
a.__more
b.__less
c.__about the same

110. Here are a few more true-false statements. After I read each statement, tell me if you think it's true or false.

T F DK a. Dwarf snap beans will produce a good crop as long as they are grown in a shady area.

T D DK b. Green peas must be planted as early as possible in order to produce their crop before hot weather.

T D DK c. Rhubarb must be planted about three years before a good harvest can be expected.

T D DK d. Bing Cherries and Elberta Peaches are good fruits for home orchards in the Minneapolis-St. Paul area.

T D DK e. Strawberries are planted in early spring in order to produce their first harvest the following spring.

T D DK f. Crabgrass and quackgrass are two names for the same weed.

T D DK g. Moss in lawns is caused by acid soils.

T D DK h. Bluegrass lawns should be watered by a light sprinkling every day in the summer.

T F DK i. Snowmold occurs in Minnesota lawns as soon as the first snow comes.

T F DK j. The best lawn seed mixture for sunny lawns in Minnesota is 80% creeping fescue and 20% bluegrass.

111. Have you ever lived on a farm?
a.__yes (How many years all together?_____)
b.__no

112. Where did you live most of the time before you were 18? On a...
a.__farm or ranch
b.__in the country, but not on a farm
c.__in a town under 2,500
d.__in a larger city (What cities?_____)
e.__other (Specify_____)

113. As a youth, did you belong to 4-H?
a.__yes
b.__no

114. How active were your parents in home gardening, or growing flowers, plants, trees, or shrubs? Very active, somewhat, not very active, or not at all.
a.__very active
b.__somewhat active
c.__not very active
d.__not at all active

115. How long have you lived in the Twin Cities area?
_____years

116. About how many times have you moved during the past 10 years? _____times

117. How long have you lived in this neighborhood?
_____years

118. How well do you think the people in your neighborhood know each other? Very well, fairly well, not very well, or not at all.
a.__very well
b.__fairly well
c.__not very well
d.__not at all
e.__don't know

119. About how many do you know by name? Most of them, only a few, or none.
a.__most of them
b.__only a few
c.__none

120. About how many do you get together with every now and then? About half of them, only a few, or none of them.
a.__about half or more
b.__a few
c.__none

121. Do you prefer to live near people who are your close friends, people you know a little, or people you don't know at all?
a.__close friends
b.__people known a little
c.__people you don't know at all

122. What, in particular, do you like about this neighborhood? (PROBE)

123. Is there anything you particularly dislike about this neighborhood? (PROBE)

124. If you had your choice, would you continue living in this neighborhood?
a.__yes
b.__no
c.__don't know

125. Do you own your home, or are you renting?
a.__own
b.__renting

126. Have you tried both owning and renting?
a.__yes
b.__no

127. Which do you think you'd prefer, to own or rent?
a.__own
b.__rent

128. Looking at Card C. (HAND RESPONDENT CARD C), you'll see a list of various types of homes. All other things being equal, if you had your choice, which type of home would you prefer to live in?
a.__single-family home
b.__double bungalow
c.__duplex, triplex, fourplex
d.__apartment
e.__townhouse
f.__trailer or mobile home
g.__other (specify) _____

129. Does having a yard, shrubs, and garden--or not having a yard, shrubs, and garden--have anything to do with your choice?
a.__yes
b.__no (IF NO, go to 130)

IF YES, ASK:

129a. In what way? (PROBE)

130. Do you have any children under 18 years of age?
a.__yes (how many?_____)
b.__no

131. Are you married, single, separated, or divorced, or widowed?
a.__married
b.__single
c.__separated or divorced
d.__widowed

132. As specifically as possible, what is your occupation? (IF RETIRED, SPECIFY FORMER OCCUPATION, THEN GO TO 134)

133. Are you currently employed either full or part time?
a.__full time
b.__part time
c.__not at all

IF HOUSEWIFE NOT EMPLOYED OUTSIDE HOME, GO TO 136

134. In your work are (were) you mostly confined to the indoors?
a.__yes
b.__no
c.__about the same in & out

135. Is (was) your work in any way related to plants, shrubs, flowers, or the like?
a.__no
b.__yes (IF YES, WHAT?) _____

136. Who is the chief wage-earner in your household?
_____ __ _____

IF RESPONDENT IS CHIEF WAGE EARNER, GO TO 141, OTHERWISE ASK:

137. As specifically as possible, what is that person's occupation?

138. Is this person's work in any way related to plants, shrubs, flowers, or the like?
a.__no
b.__yes (IF YES, WHAT?)_____

139. Is most of this person's work confined to the indoors?
a.__yes
b.__no
c.__about the same

140. How far did he (she) go in school? (HAND RESPONDENT CARD D)
a.__8 years or less
b.__some high school
c.__high school graduate
d.__some college
e.__specialized or technical training
(specify)_____
f.__college graduate
g.__post-graduate work

141. How far did you go in school? (BE SURE RESPONDENT HAS CARD D)
a.__8 years or less
b.__some high school
c.__high school graduate
d.__some college
e.__specialized or technical training
(specify)_____
f.__college graduate
g.__post-graduate work

142. As part of your formal school work, did you ever have any courses or special instruction that had anything to do with lawns, shrubs, flowers, plants, or the like?
a.__no (IF NO, go to 144)
b.__yes (IF YES, WHAT?)_____

143. Was this in high school courses, college courses, or what?
a.__high school courses
b.__college courses
c.__other (specify)_____

144. How old are you? _____years

144a. (IF REFUSED, ESTIMATE AGE) _____years

145. Looking at Card E (HAND RESPONDENT CARD E), what letter matches the total income for all members of your household during the past year?
a.__less than $4,000
b.__$4,000-$6,999
c.__$7,000-$9,999
d.__$10,000-$14,999
e.__$15,000-$25,000
f.__over $25,000
g.__don't know
h.__refused

146. So my work can be verified, would you tell me your name and phone number?

a. Name_____

b. Phone number_____

BY OBSERVATION: CIRCLE

147. M F

148. W N O_____

149. Type of dwelling
a.__single family
b.__double bungalow
c.__duplex, triplex, or fourplex
d.__apartment
e.__townhouse
f.__trailer or mobile home
g.__other (specify)_____

TURN TO BACK SIDE OF THIS SHEET!

On back side of sheet is this information:

Time interview ended:_____

Respondent's address:_____

Interviewer Signature:_____

Appendix C

TELEPHONE INTERVIEW QUESTIONNAIRE

Respondent's Name: Case No. 591
Telephone Number:
Day called University

UNIVERSITY OF MINNESOTA
AGRICULTURAL EXTENSION SERVICE
HORTICULTURAL COMMUNICATIONS SURVEY

Telephone Interview

Time interview begins_____

Hello....My name is _____, and I'm with the University of Minnesota Agricultural Extension Service. We're visiting with some of the people who have phoned the University recently for information about flowers, or plants, or yard and garden care. I'd like to ask you a few questions, if I may, about your call to the University on _____(day of week), and about the kind of service you received.

1. Was this the first time you had called the University for horticultural information; that is, information about plants, flowers, or gardening? Or had you ever called before?
   a. __first time
   b. __called before

IF CALLED BEFORE, ASK:

1a. Do you recall how you originally found out that you could call the University for information of this kind? (PROBE)

1b. About how often do you contact the University for information? Several times a month, about once a month, several times a year, or about once a year or less?
   a. __several times a month
   b. __about once a month
   c. __several times a year
   d. __once a year or less

IF FIRST TIME, ASK:

1c. How did you find out that you could call the University for information of this kind? (PROBE)

2. What was the reason you phoned the University on _____(day)? (Probe to find out what he wanted to know and why: problem or prevention)

3. Before you called the University, had you checked anywhere else for information on this?
   a. __no
   b. __yes (IF YES, Where?)_____ _____

4. How about after you called the University, did you check or do you intend to check anywhere else for further information on this?
   a. __no
   b. __yes (IF YES, Where?)_____

5. Did you have to call several numbers at the University before you got the person you finally talked to?
   a. __no
   b. __yes (IF YES, What happened?)

6. Did you have any trouble getting through to that person because of the phone being busy?
   a. __no
   b. __yes (PROBE)

7. How helpful was the person you talked to? Would you say he was very helpful, somewhat helpful, not very helpful, or not helpful at all?
   a. __very helpful
   b. __somewhat helpful
   c. __not very helpful
   d. __not helpful at all

8. Do you think you'll call the University again if you ever need information of this kind?
   a. __yes
   b. __no (IF NO, ASK: Why not?)_____

9. So far we've talked about your call to the University. Generally speaking, though, when you have a problem or question about flowers, or plants, or your yard, or garden, where do you usually go for information?

10. When you have such a problem or question, do you usually take the first good advice you can get, or do you try to get several opinions before you decide what to do?
   a. __first advice I can get
   b. __get several opinions

11. Do you generally discuss such problems or questions with people you know before you decide how to handle it?
   a. __yes
   b. __no (IF NO, GO to 14)

12. Are these people members of your immediate family, relatives, neighbors, friends outside the neighborhood, people at work, or others? (more than one possible)
   a. __immediate family
   b. __relatives
   c. __neighbors
   d. __friends outside the neighborhood
   e. __people at work
   f. __others (specify)_____

13. How important are these people's opinions to you when you have to decide how to handle a problem or make some other decision about your flowers, yard, or the like? Very important, somewhat, not very, or not at all important?
   a. __very important
   b. __somewhat important
   c. __not very important
   d. __not at all important

14. During the past week or two has anyone asked you for your advice or opinion about the care of flowers, plants, gardening, yard care, or the like?
   a. __yes
   b. __no (IF NO, go to 18)

15. Was it a member of your family, a relative, a neighbor, a friend outside the neighborhood, someone you work with, or some other friend? (more than one possible)
   a. __immediate family
   b. __relative
   c. __neighbor
   d. __friend outside the neighborhood
   e. __someone at work
   f. __other (specify)_____
   g. __don't remember

16. Did you happen to offer this person(s) advice in the normal flow of conversation, or did he specifically ask you for the advice?
   a. __offered in conversation
   b. __he asked
   c. __don't remember

17. Do you remember specifically what he/they wanted to know about?
   a. __no
   b. __yes (WHAT WAS IT?)

18. About how many persons look to you for opinions or advice on the care of flowers, plants, gardening, the yard, and so on?
   a. __no one
   b. __1 to 3 persons
   c. __4 or more

19. Compared with most people you know...are you more likely or less likely to be asked to give opinions or advice on lawns, shrubs, flowers, or related topics?
    a.__more likely
    b.__less likely
    c.__about the same
    d.__don't know

20. Where do you live? On a farm, in the country but not on a farm, in a town, suburb or city?
    a.__farm
    b.__country, not on farm
    c.__town under 2,500
    d.__suburb
    e.__central city → Specify_____

21. Do you own your home, or are you renting?
    a.__own
    b.__renting

22. What's your occupation?

23. How far did you go in school?
    a.__8 years or less
    b.__some high school
    c.__high school graduate
    d.__some college
    e.__specialized or technical training (specify)_____
    f.__college graduate
    g.__postgraduate work

    IF SPECIALIZED OR TECHNICAL, DID RESPONDENT COMPLETE HIGH SCHOOL?

24. Finally, how old are you?_____

    THANK YOU FOR YOUR COOPERATION!

25. By observation (circle)

    Sex: M F

CARD A

1. Friends and neighbors
2. Members of my family and relatives
3. Commercial organizations and businesses
4. University specialists
5. County agents
6. Radio and television
7. Newspapers
8. Yard and Garden magazines
9. Reference books I own
10. Library materials
11. My own experience or knowledge
12. Study or discussion groups
13. Other (specify) _____

APPENDIXES

THE WISCONSIN SURVEY QUESTIONNAIRES

Appendix A

_____Office Number
Project 490
October, 1971

University Extension
The University of Wisconsin
Survey Research Laboratory

Cover Sheet

Home Horticulture Study (MILWAUKEE)

* *

Interviewer: _____

Int. #: _____

* *

1. Is this telephone number _____?
(GIVE TELEPHONE NUMBER LISTED ABOVE)

YES ↓ NO (TERMINATE)

1a. Is this a residential telephone? Yes ↓ Both ↓ No (TERMINATE)

INTRODUCTION: I am with the University of Wisconsin's Survey Research Laboratory. We are calling a random sample of families in Milwaukee County to get information which will help us to develop future University Extension programs for people who grow plants in and around their homes.

2. Is this telephone in Milwaukee County? Yes ↓ No (TERMINATE)

3. Do you have plants such as trees, shrubs, vegetables, or flowers growing in or around this home?
Yes ↓ No (TERMINATE)

4. Who--in this household--is responsible for outside plants such as trees, lawns, shrubs, vegetables, and outdoor flowers?
_____ ↓, or No outside plants No one (TERMINATE INTERVIEW)

5. What is the relationship of this person to the head of this household?

_____

6. May I talk to (him; her) now?

Yes ↓
PROCEED TO INTERVIEW AFTER RE-READING THE INTRODUCTION.

No ↓
When could I reach (him; her)?
_____
_____

CALL BOX

Call No.	Date	Hour	To whom did you speak?	Detailed Result of Each Call
1				
2				
3				
4				
5				
6 or more				

NON-INTERVIEW INFORMATION

_____ Telephone not in service

_____ Not a residential telephone number

_____ Telephone temporarily disconnected

_____ Telephone never answered

_____ Refusal

_____ No eligible respondent ever at home; someone else always answers

_____ No eligible respondent in household

_____ Not in Milwaukee County

_____ No outside plants, etc.

Appendix B

_____Office Number
Project 490
Pre-test
Fall, 1971

University Extension
The University of Wisconsin
Survey Research Laboratory

HOME HORTICULTURE TELEPHONE STUDY

1. I'm going to read a list of types of plants and I would like to find out how interested you are in each item. Do you have a lot of interest, some interest, little interest or none at all?

Type of plant	Lot of Interest	Some Interest	Very little Interest	No Interest
A. Indoor flowers & other house plants	___	___	___	___
B. Fruit Trees	___	___	___	___
C. Ornamental Trees	___	___	___	___
D. Landscape Design	___	___	___	___
E. Lawns	___	___	___	___
F. Shrubs	___	___	___	___
G. Vegetables	___	___	___	___
H. Small fruits (strawberries)	___	___	___	___
I. Flowers (outdoors)	___	___	___	___
J. Song bird cover & feed plants	___	___	___	___

2. For the types of plants you have indicated a lot or some interest in, could you tell me if any of the following items I'll read suggest a reason for that interest? (CHECK ALL THAT APPLY)

___A. A chore to maintain the property similar to the neighborhood standard.
___B. Mostly because you get self satisfaction and just plain enjoyment from working with these plants.
___C. A source of fresh, high quality produce for the family.

___D. To improve the environment around the home, making it a more enjoyable place to live.
___E. It gives you more pride in your neighborhood and community.
___F. Others: (Specify)_____

Interviewer:_____ Int. No.:_____

Date:_____ Time Started:_____

(next page)

3. Again, for the plants you have shown a lot or some interest in, could you tell me where you got your "knowhow" for working with them? Was it from a...? (READ CHOICES, CHECK ALL THAT APPLY)

parent reading instructions commercial

trial & error friends & neighbors , or some other

place: _____

4. You have indicated a lot or some interest in the following plants (READ RESPONSES FROM QUESTION 1). Where do you go for help when you have a problem with each of these plant types?

_____ _____

5. I will read some typical problems people can have in growing plants. Then I will ask you to indicate how much of a problem each is to you. Is it a great problem, moderate, little, or no problem at all?

Problem	1 Great	2 Moderate	3 Little	4 No
A. Kind of plants to select	___	___	___	___
B. Soil and fertilizers	___	___	___	___
C. Diseases & their control	___	___	___	___
D. Insects & their control	___	___	___	___
E. Weeds & their control	___	___	___	___
F. Pruning	___	___	___	___
G. Shade problems	___	___	___	___
H. Watering	___	___	___	___
I. Storage & preservation	___	___	___	___
J. Transplanting	___	___	___	___
K. Seeding	___	___	___	___
L. Rodents & undesirable birds	___	___	___	___
M. Waste pesticide disposal	___	___	___	___

6. Do you have one main source you use for getting information about plants?

Yes No
(GO TO Q 13)

7. Does it seem to reflect just one man's opinion?

Yes No DK

8. Was enough information presented? In other words, were your questions answered?

Yes No DK

9. Was the information easy or hard to obtain?

Easy Hard

10. Was the information easy or hard to understand?

Easy Hard

11. In general, are you satisfied with the information source? Yes No

12. Are you aware of The University of Wisconsin Extension and its services available through county extension offices?

Yes No

13. If your University and University Extension would develop an expanded home gardener...information service, would you be interested in using it?

Yes (TO Q 14) | Depends 13a. What would it depend on? _____ | No 13b. Why not? _____

14. Do you feel you know more, about the same, or less than your neighbors about growing plants?

More About the same Less

15. Do you feel you know more, about the same, or less than your friends about growing plants?

More About the same Less

16. Do people ask you for advice about growing plants?

Yes No

17. I will read a list of materials quite often associated with growing plants. Will you tell me which ones you have used?

17. Used	Materials	17a. Used on a fixed & uniform interval	
____	A. Fertilizers	Yes	No
____	B. Weed Killers	Yes	No
____	C. Insect Killers	Yes	No
____	D. Plant Disease Preventors or Killers	Yes	No
____	E. Bedding Plants	Yes	No
____	F. Peat Moss	Yes	No
____	G. Pesticide Applicators	Yes	No

17a. FOR EACH MATERIAL USED ABOVE, ASK: Do you use it regularly, that is on a fixed and uniform interval? (RECORD ABOVE)

18. I will read a list of places where supplies can be purchased for growing plants. Now, thinking of this past growing season, did you purchase any of your supplies from a _____? (READ LIST) (CHECK ALL THAT APPLY)

18. Location	Plants, Seeds, or Fertilizers	Equipment or Tools	Pesticides-Weed Killers-Other Chem.
___ A. Garden Center	____	____	____
___ B. Department Store	____	____	____
___ C. Nursery	____	____	____
___ D. Seed Catalog	____	____	____
___ E. Hardware Store	____	____	____
___ F. Grocery Store	____	____	____
___ G. Discount Store	____	____	____
___ H. Others: _____	____	____	____
_____	____	____	____

18a. FOR EACH CHECKED LOCATION ABOVE, ASK: Were these supplies at the _____, plants, seeds or fertilizers; equipment or tools; pesticides, weed killers, or other chemicals? (RECORD ABOVE)

19. Would you estimate the yearly expenditure for all these materials we've talked about?

$_____

20. Have you taken a class or attended a meeting in flower arranging, growing flowers or vegetables, care of trees, etc., over the last two years:

Yes ↓ No (GO TO Q 21)

20a. What did the class deal with?_____

20b. Where was it held?_____
(CITY) (BUILDING)

21. Is a seed catalog sent to anyone in your household through the mail?
Yes No DK

22. Have you, or anyone in your household, received any plant information from The University of Wisconsin or from University Extension?
Yes ↓ No (GO TO Q 23)

22a. How did you receive this information? Was it from...? (READ LIST & CHECK ALL THAT APPLY)

___A. County Extension Agent
___B. Radio
___C. Newspaper
___D. Meetings
___E. Phone
___F. Bulletin
___G. Others:_____

23. How important are the publicly owned ornamental plants such as trees, flowers, and grass found in parks, golf courses and around public buildings to you? Are they of great importance, moderately important, of very little importance, or not at all important?

Great importance Moderately Very little Not at all

24. Has the lack of knowledge about insects, weeds, or plant disease discouraged you from gardening?
Yes No

25. If you knew where to find well trained personnel in the following areas, would you be willing to pay a reasonable fee for their help?

A. Landscape design Yes No
B. Lawn weed control Yes No
C. Tree pruning Yes No
D. Soil Testing Yes No
E. Tree and shrub insect control Yes No
F. Pest or problem identification Yes No
G. Plant disease control Yes No

26. How often do you personally use your public library or any of its branches such as, the mobile unit, to get information...of any kind? Do you use it often, once in a while, or never?

Often Once in a while Never

27. If your library expanded or developed an up to date gardening section, would you use it to look up information about plants and how to grow them?
Yes Possibly No

28. I will read a list of ways in which information can be presented. As far as you're concerned which would be good...or...bad ways for you to receive information about growing plants?

A. Radio programs	Good	Bad	DK
B. Television	Good	Bad	DK
C. Printed bulletins	Good	Bad	DK
D. Picture sets	Good	Bad	DK
E. Organized classes	Good	Bad	DK
F. Demonstrations	Good	Bad	DK
G. Newspaper articles	Good	Bad	DK
H. Telephone service	Good	Bad	DK
I. Personal consultation	Good	Bad	DK

29. Which would you prefer?

___ A. To pay 25 cents for a well illustrated publication covering some gardening subject of interest or....

___ B. A one page free leaflet answering one or two specific questions?

Now. . . . just a few final questions.

30. Do you live in a... One family dwelling Apartment Duplex or what?_____

31. How long have you lived at your present address?____

32. Have you ever lived on a farm? Yes No

33. What is your occupation?_____

34. What was your approximate total family income for 1970? Was it . . . . ?

Under $5,000 $5,000-$10,000 $10,000-$15,000 $15,000-$20,000 or Over $20,000

35. What was the highest grade of school you completed?

____(GRADE OF SCHOOL), OR _____(YEAR OF COLLEGE)

36. What is your approximate age? Is it . . . .?

Under 20 20-25 26-35 36-45 46-60 Over 60

TERMINATE INTERVIEW

TIME ENDED: _____

APPENDIX C

Final Draft - Mailed to all agents on October 15, 1971

University Extension
The University of Wisconsin
Survey Research Laboratory

Project 490
October, 1971

URBAN HOME HORTICULTURE PROJECT
LEARNING RESOURCES

The following definition of urban horticulture will be used for purposes of this study. Please read it carefully!

> Those programs and activities that relate to the arrangement, selection, planting, growing and maintenance of trees, shrubs, flowers, lawns, home food garden and other plant materials in and/or around dwellings, including protection from and the control of plant insects, diseases, and weeds. REGARDLESS OF YOUR SPECIALITY, IF YOU ARE ENGAGED IN ACTIVITIES RELATED TO THIS DEFINITION, PLEASE COMPLETE THE QUESTIONNAIRE. If no involvement, please sign and return immediately.

All returns should be returned by November 1, 1971 to:

University Extension
The University of Wisconsin
Wisconsin Survey Research Laboratory
Madison, Wisconsin 53706

Your Name:_____

County:_____

Position:_____

URBAN HOME HORTICULTURE PROJECT
LEARNING RESOURCES

1. Based on the last five years, approximately what percentage of your total daily work time connected with county responsibilities has been devoted to home horticulture activities?

__0-9% __10-24% __25-49% __50-74% __75-100%

2. What percentage of the total time devoted to each of the four activities listed below was related to direct home horticulture and what percentage to indirect contacts with government and commercial activities that serve home horticulture?

Activities	Home	Government & Commercial
Gathering horticulture information	____	____
Disseminating information	____	____
Defining and developing programs	____	____
Administrative responsibility	____	____
	100%	

3. Keep in mind that this questionnaire is designed to identify your special expertise as a learning resource in home horticulture. In light of this, would you please enter--as accurately as possible--the number of courses, workshops, or conferences taken or attended in each subject area listed below over the last five years?

Subject Area	Credit Courses	Non-Credit Courses	Conferences
Landscape Architecture	___	___	___
Soils	___	___	___
Plant Pathology	___	___	___
Horticulture	___	___	___
Botany	___	___	___
Entomology	___	___	___
Program Planning	___	___	___
Instructional Technique	___	___	___
Others (PLEASE SPECIFY)			
_____	___	___	___

4. Please check in the blank at the left the degree or degrees you hold. Also please indicate the major and minor.

__Bachelors Major:_____ Minor:_____
__Masters Major:_____ Minor:_____
__Doctors Major:_____ Minor:_____

Additional information:_____

5. Listed below are items of special interest to the home horticulturist. Would you please indicate your own professional interest by checking the appropriate category--none, some, much, or very much?

Items	None	Some	Much	Very Much
A. House plants	___	___	___	___
B. Vegetable gardens	___	___	___	___
C. Flower gardens--outdoors	___	___	___	___
D. Lawns (turf)	___	___	___	___
E. Landscaping	___	___	___	___
F. Shrubs--ornamental	___	___	___	___
G. Trees--ornamental	___	___	___	___
H. Trees (fruit)	___	___	___	___
I. Weed Control	___	___	___	___
J. Disease	___	___	___	___
K. Insects--mites	___	___	___	___
L. Small fruits (strawberries, etc.)	___	___	___	___
M. Ecology of plant life	___	___	___	___
N. Pests--birds and small animals	___	___	___	___
O. Waste pesticide containers and their disposal	___	___	___	___

6. For each of the items in Question 5 marked "very much," would you please indicate why they are of special interest to you? (For example: Is it a personal hobby? To satisfy county needs? Are unusual facilities available? Perhaps it is a combination of these.)

LETTER OF ITEM	REASON
_____	_____
_____	_____
_____	_____

7. Do you work with special need clientele such as youth, retired groups, welfare, low income, wealthy, apartment dwellers, etc.?

Yes ↓ No (GO TO QUESTION 8)

7a. Please specify. _____

8. Below is a list of ways for getting information to others. Information that is either created by you, or information created by someone else, that you use. This might involve writing material, performing, selecting visuals, consultation, or giving talks. Please indicate--with a check in the blank to the left of each item--which communication vehicle you have been able to employ. Also, indicate the frequency of use for each item you have checked.

✓If Used	Item	Occurring at Irregular or Rare Intervals	No. per Year	Recurring at Fixed & Uniform Intervals	No. per Month
___	Television	___	___	___	___
___	Radio	___	___	___	___
___	Workshop	___	___	___	___
___	Telephone	___	___	___	___
___	Clinics	___	___	___	___
___	Books (author)	___	___	___	___
___	Magazine articles	___	___	___	___
___	Newspaper articles	___	___	___	___
___	Newsletters	___	___	___	___
___	Circulars	___	___	___	___
___	Pamphlets	___	___	___	___
___	Visitations	___	___	___	___
	Others (PLEASE SPECIFY)				
___	_____	___	___	___	___

9. Please list below--in the proper categories--the professional organizations in which you now hold membership. In addition, please indicate if you have ever held an office, contributed an article, or participated in their programs.

National	Held Office	Contributed Articles	Attended Meetings
_____	_____	_____	_____
_____	_____	_____	_____
Regional			
_____	_____	_____	_____
_____	_____	_____	_____
State			
_____	_____	_____	_____
_____	_____	_____	_____
Others			
_____	_____	_____	_____

10. Would you like to do cooperative research with University staff?

___Yes ___No

Comment: _____

11. Would you like to do cooperative research with industry?

___Yes ___No

Comment: _____

12. Check in the blank to the left of the list, what businesses serving the needs of home horticulture you like to work with at the present time. Then indicate in the blank to the right, the ones you would most likely work with in the future.

✓	Business	Future
___	Greenhouse operators	___
___	Landscaping firms	___
___	Chain stores like Wards, etc.	___
___	Garden centers	___
___	Grounds/maintenance personnel	___
___	Sod growers	___
	Others (PLEASE SPECIFY)	
___	_____	___

13. Of the following resources that may be available to you, indicate first the ones you have used in meeting home horticulture needs by checking the blank to the left of each item. Then, thinking of the ones you have used, please record the letter from Box #1 which comes nearest to indicating how they were used.

BOX #1

A. To gain horticulture information
B. To disseminate horticulture information
C. To sponsor horticulture projects

✓IF USED	RESOURCE	LETTER
___	Professional organizations	___
___	Semi-professional organizations	___
___	Non-professional organizations	___
___	Municipal	___
___	Agencies	___
___	Universities	___
___	Vocational-technical colleges	___
___	University Center Systems	___
___	Commercial	___
___	Libraries	___
___	Specialists	___
	Others (PLEASE SPECIFY)	
___	_____	___

14. Please indicate which--if any--of the following items represent major problem areas to you because of numbers of inquiries from the county, by placing a check in the blank to the left of each item. Also, record the letter or letters from Box #2 which come nearest to describing the home horticulture area the problem relates to in your situation.

___NONE
(GO TO Q 15)

BOX #2

A. House plants	F. Trees(ornamental)
B. Vegetable gardens	G. Trees (fruit)
C. Flowers (outdoors)	H. Landscaping
D. Lawns (turf)	I. Small fruits (strawberries)
E. Shrubs	

✓	Items	Letter, Box #2
___	Fertilizer	___
___	Transplanting	___
___	Watering	___
___	Seeding	___

✓	Items	Letter, Box #2
__	Disease	__
__	Insects and mites	__
__	Pollution	__
__	Pruning	__
__	Variety choice	__
__	Weeds	__
__	Pests such as birds and small animals	__
__	Waste pesticides and their containers	__
__	Other: _____	__
__	Other: _____	__

15. Following is a list of selected items and circumstances that might be needed by a county office to accomplish home horticulture goals. Please indicate the extent of need for each of the following items or circumstances in your county.

Items and Circumstances	No Need	Some Need	Extensive Need
A. Trained extension horticulturist	__	__	__
B. Demonstration facilities	__	__	__
C. Budget for support materials at county level	__	__	__
D. Instruction materials provided by specialist	__	__	__
E. Time to develop and present instructional programs	__	__	__
F. Assistance in instructional techniques such as workshops, etc.	__	__	__
G. Time to analyze local problems in home horticulture	__	__	__
H. Diagnostic support services	__	__	__
I. Available research	__	__	__
J. Acquiring publications	__	__	__
K. Recognition of home horticulture as an important commitment by power structure that influences you	__	__	__
L. Relating changing life styles and values of clientele to program needs	__	__	__
Others (PLEASE SPECIFY)			
M. _____	__	__	__
N. _____	__	__	__
O. _____	__	__	__

16. Which one of the items or circumstances above do you think is most important for the future development of your home horticulture program?

_____(LETTER)

Thank you for your time.

APPENDIX

ES-USDA SURVEY QUESTIONNAIRE

TASK FORCE SURVEY

Home Horticulture

Situation and Problems:

Nationally the number of people involved in home horticulture activities is continually and rapidly increasing. The reasons for this increase are numerous. There are more people, there is an increasing interest in horticulture as a hobby or recreational activity, for home and community landscaping, for environmental improvement, or to improve family nutrition.

These horticulture activities have benefited the national economy and the nursery, greenhouse and allied industries. A recent agricultural survey reports that more than 36,000 farms are producing nursery and greenhouse crops and this phase of the industry employs 125,000 full-time people.

A regional study shows an $11 million or a 67 percent sales increase in a recent five year period and an anticipated additional 44 percent increase during the 1967-1972 period. Nationally the farm value of greenhouse and nursery crops for the home horticulturist is approximately $620,000,000, and retail sales to this clientele are in excess of $1 billion. Flower and vegetable seeds produced for the home gardener make an important contribution to the economy too.

Extension reaches the noncommercial home horticulturist directly and also indirectly through the commercial segment that produces and markets plants, equipment and materials, and provides services to the home horticulturist.

Many Extension teaching methods and techniques have been developed for home horticulture programs. The purpose of this survey is to identify some of these programs and methods and bring about an exchange of ideas that will help make our Extension home horticulture programs more effective and efficient.

Your cooperation in completing this questionnaire will contribute to the home horticulture program nationally. If you have any comments or suggestions that you feel would make this survey more complete, please submit them with the completed questionnaire.

EXTENSION HOME HORTICULTURE: for the purpose of this study Extension home horticulture is defined as those programs and activities that relate to the arrangement, selection, planting, growing and maintenance of trees, shrubs, flowers, lawns, home food garden and other plant materials in and/or around dwellings, including protection from and the control of plant insects, diseases and weeds.

1. Is the above definition of home horticulture in agreement with the concept of home horticulture in your State?

   YES ____ NO ____

   (If NO) Explain why.

2. Is there provision for differentiating between home horticulture and other horticultural work in your State Extension Management Information System?

   YES ____ NO ____

3. Write below the State Extension purpose(s) and code number under which county and State work in home horticulture is reported.

4. Is there a need for some change in the Extension reporting system to improve the reporting of time, activities and accomplishments relevant to home horticulture?

   YES ____ NO ____

5. (If YES to Number 4) Indicate changes you think are needed to improve reporting of home horticulture work.

6. In your State are there organized Extension educational home horticulture programs?

   YES ____ NO ____

   If NO to number 6, complete number 7 and return questionnaire without further consideration.

7. What are the reasons for conducting or not conducting Extension educational home horticulture programs in your State?

8. What were the total Extension staff man years devoted to home horticulture efforts in your State during the 1970-71 fiscal year?

   A. Professional Staff

   STATE STAFF MAN YEARS ____ AREA STAFF MAN YEARS ____ COUNTY STAFF MAN YEARS ____

   B. Paraprofessional Staff

   Number employed ____ Man years equivalent ____

9. Demands for assistance on home horticulture problems during the past three years have -

   INCREASED____% DECREASED____% REMAINED ABOUT SAME____

10. Have Extension home horticulture service type activities, e.g., plant identification, plant insect and disease diagnosis, soil analysis phone calls, etc., over the past three years in your State -

    INCREASED____% DECREASED____% REMAINED ABOUT SAME____

11. Check below those subject matter areas included in home horticulture programs in your State and indicate for each area checked the trend in request for assistance.

Subject Matter Areas	Areas Included in Program (check)	Trends in request for assistance over the past three years		
		Increase	No change	Decrease
Shrubs				
Lawns				
Trees				

11. cont.

Subject Matter Areas	Areas Included in Program (check)	Trends in request for assistance over the past three years: Increase	No change	Decrease
Perennial Flowers				
Annual Flowers				
Vegetables				
Ground Covers				
Vines				
House Plants				
Exotic Plants				
Greenhouses (hobby)				
Fruits and Nuts				
Home Landscaping (Lawns and Plantings)				
Structures (patios, walls, walks, pools, etc.)				
Decorative features - (lighting, fountains, etc.)				
Plant Propagation				
Soil Management and Fertilizer				
Plant Diseases				
Plant Insects				
Weeds				
Others (list)				

12. Check for each subject matter area listed below the degree of change in emphasis needed in Extension home horticulture programs in your State.

Subject Matter Areas	Change in Emphasis Needed: No Decrease	Moderate Change	Extensive Increase
Shrubs			
Lawns			
Trees			
Perennial Flowers			
Annual Flowers			
Vegetables			
Ground Covers			
Vines			
House Plants			
Exotic Plants			
Greenhouses (hobby)			
Fruits and Nuts			
Home Landscaping (Lawns and Plantings)			
Structures (patios, walls, walks, pools, etc.)			
Decorative features - (lighting, fountains, etc.)			
Plant Propagation			
Soil Management and Fertilizer			
Plant Diseases			
Plant Insects			
Weeds			
Other (list)			

13. Check below by characteristics of audiences and by type of contacts, the trends in size of the home horticulture audiences being reached in your State over the past three years.

Characteristics of Audiences and type of contacts	Trends in Size of Home Horticulture Audiences: Decreasing	No Change	Moderate Increase	Extensive Increase
EDUCATIONAL LEVEL				
Low (less than High School)				
Medium (High School)				
High (College)				
INCOME LEVEL				
Low (below $3,000)				
Medium ($3,000 to $10,000)				
High (over $10,000)				
GROUPS OR ORGANIZATIONS (Garden Clubs, Societies, Special Interest, etc.)				
INDIVIDUAL CONTACTS (Phone calls, office calls, etc.)				

14. For the categories listed below, in your State estimate how many specimens or samples were processed by State and area specialists for home horticulturists during the 1970-71 fiscal year as compared to the 1969-70 fiscal year.

Specimen OR Sample	Number Received 1970-71 Fiscal Yr.	1970-71 Fiscal Year compared to 1969-70 Fiscal year: Increased	Decreased	Same
Plant Identification (Exotics, woody ornamentals, etc.)				
Plant Disease Identification				
Plant Insect Identification				
Weed Identification				
Soil Analysis				

15. Extension service type activities in home horticulture in the future should be -

Encouraged___ Maintained at current level___

Discouraged___

Comments:

16. Extension educational horticultural programs for rural and urban home horticulturists and in total for the State in the future, should be -

Rural Home Horticulture
Increased__ Maintained at current level__ Decreased__

Urban Home Horticulture
Increased__ Maintained at current level__ Decreased__

Total Home Horticulture for State
Increased__ Maintained at current level__ Decreased__

17. List the kinds of businesses, organizations, agencies and societies that help promote and conduct Extension home horticulture programs in your State.

Businesses

Organizations

Agencies

Societies

18. In your State are educational programs in home horticulture conducted for garden store operators, nurserymen, landscape gardeners and other commercial people by -

State Extension Specialists

YES ____ NO ____

Area and/or County Agents

YES ____ NO ____

If YES to either or both above -

(a) How are these programs usually initiated?

(b) How many such programs were conducted and how many specialists man years were devoted to such programs during the 1970-71 fiscal year?

Number of Programs___ Number of Man Years___

(c) Is a registration or enrollment fee charged?

YES ____ NO ____

(d) What is the estimated total number of different people participating in these programs last year?

Total attendance (estimated) _____

19. Based on the problems of rural and urban home gardeners, future emphasis on organized Extension educational programs in home horticulture in this State for commercial garden store operators and employees, nurserymen, landscapers, garden editors, etc. should be -

Rural Home Horticulture

Increased__ Remained about the Same__ Decreased__

Urban Home Horticulture

Increased__ Remained about the Same__ Decreased__

Total Home Horticulture for State

Increased__ Remained about the Same__ Decreased__

20. In your State are garden store operators, nurserymen, etc., providing home horticulture service type information: i.e., plant identification, gardening advice via phone calls or in person, soil analysis and plant pests such as insect, disease and weed identification and control, etc.?

YES ____ NO ____

21. If YES to Number 20 -

How frequently are fees charged for this service?

Always__ Generally__ Rarely__

Never__ Don't Know__

22. If YES to Number 20 -

How consistently are the recommendations or information given considered to be in agreement with those of your State Extension Service?

Always__ Generally__ Rarely__

Never__ Don't Know__

23. Check below the Extension specialists in your State involved in the planning and conducting of training or educational programs for garden store operators, nurserymen, etc. Also list other resource people involved.

Extension Specialists Involved (check left column)	Other Resource People (list)
Agronomist (Other than agronomic crop specialist)	
Entomologist	
Horticulturist	
Plant Pathologist	
Management	
Marketing	
Others (list)	

24. In your State are there Extension interdisciplinary planning committees for home horticulture?

State Committee:
YES___ NO___

County or Area Committees:
YES___ NO___

25. If YES to either or both in Number 24 -

Explain briefly the functions performed by each committee.

State Committee:

County or Area Committees:

26. If YES to either or both in Number 24 -

Are Non-Extension people involved on Extension planning committees for home horticulture educational programs?

State Committee:
YES___ NO___

County or Area Committees:
YES___ NO___

27. If YES to either or both in Number 24 -
Briefly identify types of Non-Extension people involved.

28. Approximately what percent of the total Extension home horticulture program efforts with families in this State were expended in Fiscal Year 1970-71 with each of the following categories of clientele:

Clientele	Percent of Home Horticulture Program Efforts with Families
Rural	
Urban:	
Inner City	
Suburban	
TOTAL	100%

29. In your opinion, what program content and methodology is needed to meet the commonly recognized needs in home horticulture of the following categories of clientele:

Clientele	Program Content	Methodology
Suburban		
Rural		
Inner City		

30. In your opinion what is the extent of benefit from Extension home horticulture mass media educational efforts to the following audience categories by place of residence.

Audience By Place of Residence	EXTENT OF BENEFIT OF MASS MEDIA							
	Newspapers				Radio			
Extent	Much	Some	Little	None	Much	Some	Little	None
Suburban								
Inner-City								
Rural								

Audience By Place of Residence	EXTENT OF BENEFIT OF MASS MEDIA							
	T.V.				Gardening Magazines			
Extent	Much	Some	Little	None	Much	Some	Little	None
Suburban								
Inner-City								
Rural								

31. In your State are there some categories of home residents that should be reached that are not now being reached by Extension home horticulture programs?

YES ___ NO ___

(If YES) Indicate the specific category of home residents, their horticultural needs and how they might most effectively be reached.

32. Are home horticulture newsletter(s) prepared in your State by State specialists?

YES ___ NO ___

(If YES) Check the recipients listed below that receive the newsletter, identify any additional categories of recipients and indicate the number distributed to each category.

Recipients of Newsletters	YES	NO	Number Distributed
County Agents			
Nurserymen			
Garden Store Operators			
Turf Growers			
Park Superintendents			
Home Gardeners			
Other (List)			

33. In how many counties are home horticulture newsletters prepared by county Extension staffs in your State?

Number of counties _____

34. Briefly describe the two home horticulture projects or activities in your State which are considered the most productive as measured by accomplishments or changes made by participants.

a.

b.

Attach program agendas, printed materials, certificates of completion, etc., developed and used for each.

35. In your State are suburban, inner city and rural people charged a fee for Extension sponsored home horticulture events, activities and publications?

	Events and Activities		Publications	
Suburban	YES___	NO___	YES___	NO___
Inner City	YES___	NO___	YES___	NO___
Rural	YES___	NO___	YES___	NO___

36. How often do the Extension Specialists involved in home horticulture plan and conduct evaluations to determine accomplishments of participating families resulting from Extension horticulture programs?

Always___ Usually___ Seldom___ Never___

(Please attach copies of recent evaluation report of home horticulture programs).

37. How often are those who participate involved in evaluating accomplishments of Extension home horticulture educational programs?

Suburban -

Always___ Usually___ Seldom___ Never___

Inner City -

Always___ Usually___ Seldom___ Never___

Rural -

Always___ Usually___ Seldom___ Never___

38. What use is made of evaluation reports of accomplishments of participating families?

39. Based on your experience with home horticulture programs, what are the salient factors to keep in mind when designing a home horticulture program for:

a. Rural clientele -

b. Suburban clientele -

c. Inner-City clientele -

40. List by title the home horticulture publications slide sets and other educational aids that were prepared by your State in the past three years and check each for the potential for national use and the audience categories by income and education which would find each publication useful. (Please attach copies of publications appropriate for national use).

Title of: Publications, Slide Sets and Other Educational Aids	National Use Yes	National Use No

Audience by Income Level		
Income		
Less Than $3,000	$3,000-10,000	$10,000 plus

Audience by Education Level		
Education		
Less than High School	High School	College

(Use a second sheet if necessary)

41. Is there a need for regional or national specialized workshops on home horticulture for State program leaders and specialists?

National -

YES___ NO___

Regional -

YES___ NO___

42. If YES to either or both in Number 41 -

Check the subject matter disciplines that should be represented by participants in such interdisciplinary workshops.

Discipline	Represented at Workshops YES	NO
Agronomy (Other than agronomic crops specialist)		
Entomology		
Horticulture		
Plant Pathology		
Soils		
Fertilizers		
Turf		
Weeds		
Marketing		

List of Tables

Part I: The Minnesota Report

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Roland H. Abraham, Director of Agricultural Extension Service, University of Minnesota, St. Paul, Minnesota 55101. We offer our programs and facilities to all people without regard to race, creed, color, sex, or national origin.